DOMESTIC ENGINEERING

A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation

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"Not until this war is won can men anywhere live free from constant fear or breathe freely, while they go about their daily tasks, and know that governments are their servants, not their masters."

—President Woodrow Wilson, in His Labor Day Proclamation.

HAMMERING HOME THE SERVICE FEATURE IN SALESMANSHIP.

SERVICE is today the vital and universal demand. He who has something to sell must emphasize the fact that service will accompany the sale. Hence the necessity of being a service salesman.

The supreme importance of featuring service in salesmanship was fully realized by the Trade Extension Committee, when that body formulated its plans for educating the plumbing and heating contractors of the country in logical ways and means of selling essential service to the American house-owner during the war.

There is no question as to the essential character of the service, which is offered by the plumbing and heating industry, particularly as it effects the rehabilitation and modernizing of old buildings.

It is up to the contractors in every community to feature the importance of this service, and to demonstrate how essential it is in its relation to health, ordinary human comfort and economy.

Many house-owners in your city need this service more than they can appreciate—until they have been shown the menace of being without it.

You must show them that leaky plumbing fixtures will increase materially the water rate bills, if metered service prevails, and that defective heating systems will consume additional fuel and thus prevent fuel economy this winter.

In featuring the service side of salesmanship, in the plumbing and heating business, much has been said of the effectiveness of advertising through local newspapers and sales letters. Too much stress cannot be placed upon the advantages to be derived from these mediums of sales promotion.

Equally important, however, is the personal equation, the direct verbal appeal to the house-owner, who needs your service, but does not fully realize that he does, until you have thoroughly saturated him with the many reasons why such service will be to his advantage.

Whether the house-owner is a farmer or a city landlord, the fundamentals of selling plumbing and heating service are the same.

The wide-awake contractor, imbued with the desire to render essential community service, may decide in difficult instances, that his call must be largely an educational one. He may consider it an opportunity for sowing a few selling seeds, which will grow and bear fruit in due time.

While carrying himself as a clean-cut business man, and expecting the courtesies of business, he can proceed to hold the attention and interest of his prospect. He can come fortified with a hundred and one real, and incontrovertible arguments, showing the advantage of overhauling or remodeling that plumbing or heating system—or of installing new fixtures, a new bathroom, a kitchen water heater, an additional closet or a water supply system.

The time-honored "not interested" objection, of prospective customers, should not discourage or take the selling pep out of the service salesman in the plumbing and heating business.

"Of course, they are not interested," said a western plumbing and heating contractor who has cultivated personal salesmanship for years. "You don't expect them to be interested in something, until you have created an interest, which will develop into desire, and then decision and finally action. Your prospect has at length become your customer and he wants your service."

PRESSURE REGULATING DEVICES

Notes on the Construction and Operation of Back Pressure Valves for Modern Heating Systems

By Charles L. Hubbard

(Continued from Page 314 in the August 31st Issue.)

Back Pressure Valves.

A back pressure valve is a relief or safety valve of large size, placed in the outboard branch of an exhaust pipe to prevent the back pressure on the engine, and also the pressure in the heating system, from rising above a certain predetermined limit. In a well-designed system of exhaust heating this should not exceed 2 or 3 pounds, gauge, and many plants are operating satisfactorily on less than 1 pound pressure.

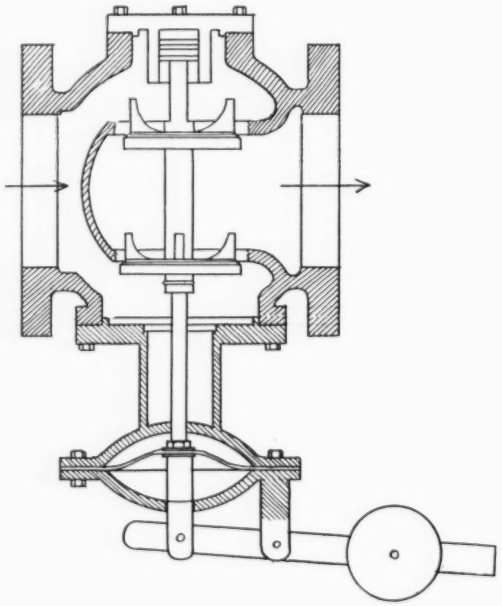


Fig. 8.

Various principles and methods of construction are employed by different makers and a few typical illustrations will be shown, as in the case of reducing valves.

A typical valve for a horizontal pipe is shown in Fig. 8. The valve is always actuated by the inlet pressure, the outlet being open to the atmosphere, which is constant.

Adjustments for varying the pressure, at which the valve will open for discharge, are made by means of springs or weights, as will be described in connection with the illustrations.

In Fig. 8 the pressure acts upon a flexible diaphragm attached to the bottom of the valve stem, and when the opening pressure is reached, this is forced down against the resistance of the weighted lever and so opens the double-ported balanced valve above and allows the excess of exhaust steam to escape outboard.

The form shown in Fig. 9 is designed for a vertical pipe, the force tending to open the valve is that due to the steam pressure acting on an area equal to the difference in area between the two discs, it being clear from the cut that the pressure, acting on the larger disc, tends to open the valve while the pressure on the smaller one acts in the opposite direction. The valve stem is connected by a link and crank arm with a spindle, upon which are a lever and weight outside.

Fig. 10 shows a different type, in which a spring is used instead of a weight. This valve has a single disc moving in a vertical direction. The valve stem is in the form of a piston or dash-pot, which prevents a too sudden movement and makes it more quiet in action. The disc is held on its seat against the steam pressure by a lever attached to the spring, as shown. When the pressure on the under side becomes greater than the tension of the spring, the valve lifts and allows the steam to escape. The tension of the spring can be varied by means of the adjusting screw at the upper end.

Another type of back pressure valve, particularly adapted to pipes of large diameter, is shown in Fig. 11. This contains a valve-deck upon which are placed a number of small spring valves, each provided with a dash-pot for cushioning its action. The tension of the springs, and consequently the pressure at which the valves open, is determined by the position of an adjustable pressure plate operated from the outside. Only one of these small valves is visible in the section given. The diagram at the left shows the pressure plate screwed down to its lowest position so as to give a maximum tension to the coil springs above the valves. In the second position the deck or plate is raised so that all spring tension is relieved and only the weight of the valve itself must be raised by the steam pressure.

Two diagrams are shown in Fig. 12 illustrating the common methods of connecting reducing valves and back pressure valves into a system of exhaust steam heating. The first of these shows the general principle followed in shops and factories or other buildings of one or two stories, where the heating mains are carried either in a basement or at the

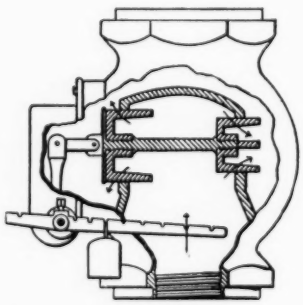


Fig. 9.

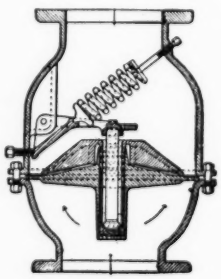


Fig. 10.

ceiling of the first story. The pipe connections shown are usually in the boiler or engine room where the outboard exhaust is carried directly through the roof. These two valves work together automatically. When the exhaust falls short of heating requirements the reducing valve opens and

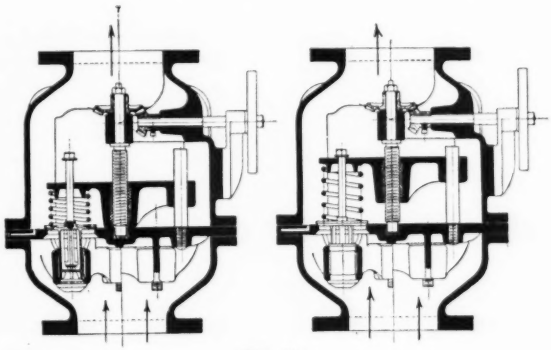


Fig. 11.

admits enough live steam to make up the deficiency. On the other hand, when there is too much exhaust and the back pressure rises slightly above the normal, the back-pressure valve opens and allows the surplus to pass outboard.

The second diagram illustrates an arrangement particularly adapted to tall buildings like office buildings and makes the outboard exhaust pipe serve as a heating riser, thus reducing the cost of installation.

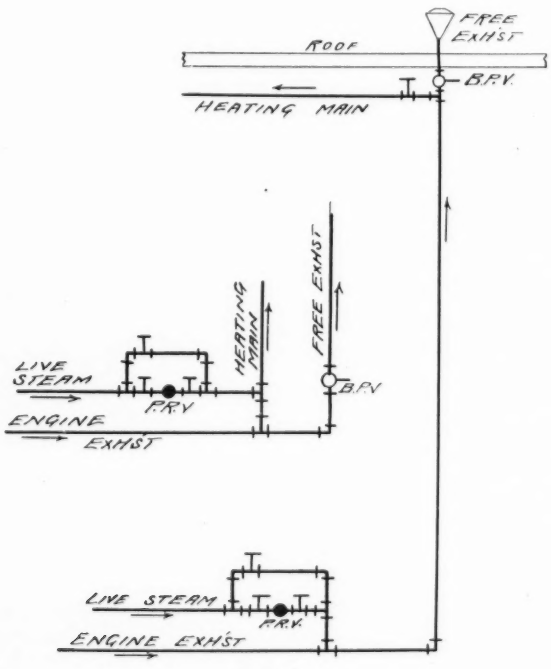


Fig. 12.

The overhead system of steam distribution is especially adapted to buildings of this kind and this arrangement works to advantage in two ways.

Safety and Relief Valves.

Safety valves are familiar to all steamfitters; and are used principally on steam boilers to prevent the pressure from rising above a given point. They are also used on a variety of devices besides, for the same purpose. They are constructed in several forms, but in every case they consist of a valve opening outward and held in place by a spring or weight. The lever safety valve is the older form and is but little used at the present time, although it may still be found upon some of the cheaper grades of power boilers and also to a limited extent upon some types of low-pressure heating boilers. Among its principal defects are that it does not close promptly after the pressure is reduced, is likely to leak after it is closed, and can be easily overloaded or wedged in place. The spring or pop-safety valve has largely taken its place at the present time for all classes of work (See Fig. 13). These valves open when the steam pressure is sufficient to overcome the tension of the spring, and can be adjusted for different pressures by means of a nut and screw at the top, which increases or diminishes the tension as required. They

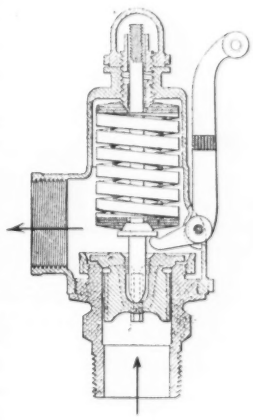


Fig. 13.

are often provided with a "lock-up" attachment in heating work so that the regulating parts cannot be tampered with either by accident or design. There are many rules

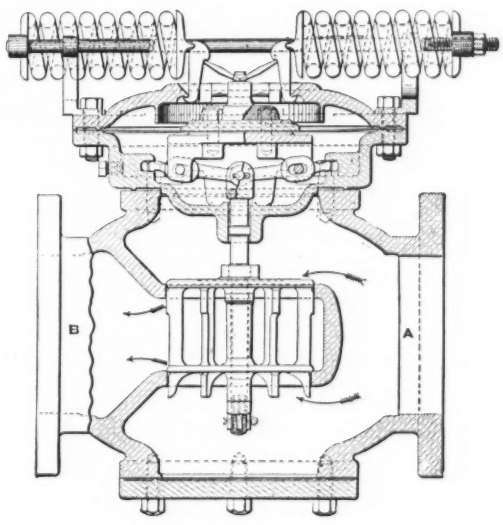


Fig. 14.

for determining the size of a safety valve, each giving different results. The following, taken from "Kent's Mechanical Engineers' Pocketbook," seem to give about the average, and correspond well with the sizes given in the catalogs of standard makes:

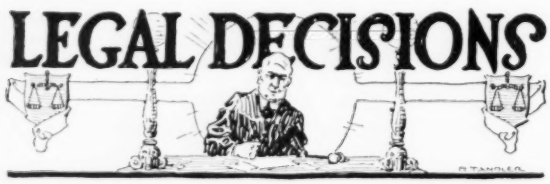
Lever Safety Valves.

Diameter of Valve, in inches	1	1½	2	2½	3½	4
H. P. of boiler	20	30	40	50	60	80

Pop Safety Valves.

Diameter of Valve, in Inches	H. P. of Boiler
1	5— 10
1¼	10— 20
1½	20— 30
2	30— 40
2½	40— 75
3	75—100
3½	100—125
4	125—150
5	150—200

Relief valves, so called, are similar in general construction to safety valves but have a somewhat wider range of application. While their use may be identical with that of a safety valve in some cases they are often applied to other kinds of apparatus, where it is desired to discharge considerable quantities of steam or water automatically from a higher to a lower pressure. A valve of this type having a large port opening is shown in Fig. 14. This is designed especially for discharging the surplus steam from high-pressure power boilers into low-pressure heating boilers, when the two kinds are used in the same plant. In certain respects a relief valve has some of the elements of both the safety and pressure reducing valve, but is operated by the high-pressure steam instead of the low pressure in all cases.



Duty of Licensees Using Premises on Which Plumbers Are Working.

The Court of Appeals of New York, in reversing a judgment obtained by the plaintiff, and dismissing his complaint, in the case of Vaughn vs. Transit Development Co., 118 Northwestern Reporter, 219, says that the defendant supplied electric power to operate trolley cars to a railroad company, for which the plaintiff was a motorman, and that he was injured by falling into an opening in the floor of a toilet room in one of the defendant's power substations, where the defendant's plumbers had been working for half an hour or more previous to the accident, and where, for them to turn off the water from the street, it had been necessary to raise a floor plate or trap door. The plaintiff and other employes of the railroad company had used this toilet room for their convenience for years, without objection on the part of the defendant. His status was that of a bare licensee.

Here was an affirmative act in the work of the plumbers, and the court must determine whether that act was affirmative negligence. Alterations made suddenly and left without warning or proper precautions may amount to willful disregard for the safety of licensees. The standard of reasonableness which must be established will vary with the circumstances of the case. The plaintiff must establish actionable negligence, and "to bring the case within the category of actionable negligence, some wrongful act must be shown, or a breach of some positive duty." The defendant owed the plaintiff a duty to abstain from injuring him either intentionally, or by failing to exercise reasonable care, but it did not owe him the duty of active vigilance to see that he was not injured while upon its land merely by permission for his own convenience.

The court thinks that the defendant discharged its duty to the plaintiff according to this test. Not only for its own purposes, but also as incidental to the convenience of those whom it permitted to use the toilet, it had to keep its plumbing in good order. All that it did was done openly and visibly in the ordinary course of affairs. The plaintiff was not deceived or trapped into the belief that he would be warned if the floor was opened temporarily to turn the water on or off. At the time this accident occurred it was immediately necessary to have the cover off the box in the floor in order to get at the stop cocks which regulated the flow of water. It was immaterial to this case how long the cover had been off. The duty of the defendant was not measured by the time it took the plumbers to do the work. To have the cover off while the plumbers were working there was a normal, usual, and proper use of the premises, and therefore the defendant exercised reasonable care toward its licensees under the circumstances.

Under other conditions—for example in the dark and after the men had left the job—the court might say that this hole would become a trap or pitfall to those long accustomed to enter the place, and that it would be actionable negligence to go away and leave it unguarded. But at this time an express warning to the plaintiff would have been the exercise of that active viligance, to see that he was not hurt which the law does not demand. The defendant rendered him a gratuitous service and owed him slight care. He was on the premises by sufferance. He had permission to be there merely because he had not been ordered off. Reciprocally, it was his duty actively to look out for himself, to observe the changed conditions, the ladder, the men at work, the opening in the floor. He was entitled to no greater notice than the doing of the work itself gave of what was being done. If he was incurious to the obvious, he was himself to blame.

Contract Promising Satisfaction.

When by the terms of a contract work is to be paid for after "a satisfactory test has been made," it must be satisfactory to the one who is to pay for it, if the contract is silent as to the person to whom the work shall be satisfactory.

Where a promisor agrees to pay for work or goods provided he is satisfied with them, he must act honestly and in good faith. To escape liability his dissatisfaction must be actual, and not feigned, real, and not merely pretended. It is only the actual existence, not the mere expression, of dissatisfaction that can have this effect. He must, if a test is necessary to determine fitness, give that test, or permit it to be made. Where good faith is in issue, and the evidence is conflicting, a jury question is presented.—Supreme Court of New Jersey, in Williams vs. Hirshorn, 103 Atlantic Reporter, 23.

THE FOURTH LIBERTY LOAN.

The campaign for the Fourth Liberty Loan begins September 28th and closes October 19th. While the amount has not yet been announced, it is generally conceded it will be for a larger amount than any of the preceding loans. The American people, therefore, are called upon to raise a larger sum of money in a shorter length of time than ever before. There is need, therefore, for prompt action—prompt and efficient work and prompt and liberal subscriptions.

We have a great inspiration for a great effort. The news from the battle front inspires every American heart, not only with pride and patriotism, but with a great incentive to do his or her part. There is no shirking, no shifting of the individual burden, no selfishness by American soldiers in France; there should be none here. We are both supporting the same country and the same cause—our army in one way, ourselves in another. Theirs is the harder part, but at least we can do our part as promptly and loyally and efficiently as they do theirs.

Camden, N. J.—H. L. Snyder, of Thirty-fourth and Federal Streets, has been awarded the contract for the installation of plumbing in the new addition to the State Masonic Home, in Burlington.

The WHY *and* WHEREFORE *of* SANITARY ENGINEERING

A Series of Articles on Technical and Scientific Plumbing and Sanitation

By Arthur Bateman

(Continued from Page 344 in the August 31st Issue.)

Heat.

AT one time heat was acknowledged to be an elastic fluid which filled the spaces between the molecules of various bodies. This theory was found incorrect in the year 1798, when it was shown that whenever energy was expended, heat was generated. This is readily proved by sawing a piece of lead pipe, or by rubbing two pieces of ice together. In the first instance both the saw and pipe become heated, and in the latter the ice becomes melted. Hence, we can define heat as "a form of energy."

Heat should not be confused with temperature. Heat may flow from one body to another, and the condition,

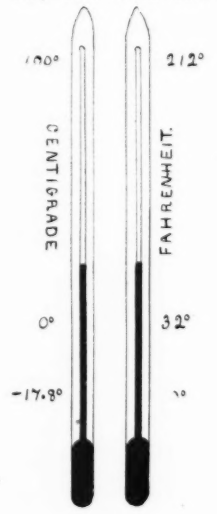


Fig. 1.

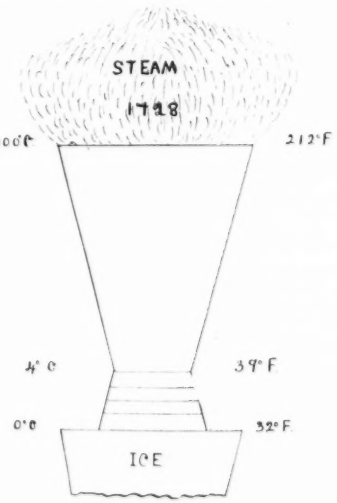


Fig. 3.

that determines which way the flow will take place, is called temperature.

Our sense of feeling cannot be relied upon to indicate whether a body is hot or cold. For example, place the right hand in ice-water and the left hand in hot water; after a minute withdraw them and place them simultaneously in water just drawn from the faucet. It will seem warm to the right hand and cold to the left hand, because in the first case heat passes from the water to the hand, and in the second case from the hand to the water.

Again if we descend a deep well in winter the air feels warmer than that outside, while in summer it is one of the coolest places we can find. Still further, a radiator in winter feels colder to the hand than a fur glove. The radiator conducts the heat away from the hand faster than the fur does, and thus gives the sensation of a lower temperature.

Temperature.

The temperatures of various bodies are registered in degrees on an instrument known as a thermometer.

The thermometer consists of a thick-wall glass tube with a bulb blown on one end, into which perfectly clean pure mercury is introduced. When the mercury has been heated slightly above the highest temperature, which the thermometer is expected to register, the open end of the tube is sealed by means of a hot flame; when the mercury cools, it contracts and leaves a perfect vacuum above the mercury column in the tube. The thermometer is now placed successively in a vessel of melting ice, and in the steam rising from boiling water, and the position, which the top of the mercury column assumes in each case, is marked on the tube to indicate the freezing point and the boiling point, respectively.

If the Centigrade scale is used, the temperature of the melting ice is taken as 0°, while the boiling point is marked 100°, and the space between these marks is divided into 100 equal parts. This scale is used in scientific work the world over and for ordinary purposes in all countries, except England and the United States.

In the Fahrenheit thermometer, which is the common thermometer in England and the United States, the temperature of melting ice is taken at 32° instead of 0° and the boiling point of water is 212° instead of 100°. The space on the stem between these marks is then divided into 180 parts. These thermometers are shown in Fig. 1.

Heat Measurement.

Unlike temperature, heat is measured in "units" known as "heat units" or "thermal units." The standard measurement is the British thermal unit, usually written B. t. u., and is based on the amount of heat required to raise 1 pound of water 1° Fahr.

If we desire to raise 10 pounds of water from 65° Fahr. to 185° Fahr., we will require $10 \times 120 = 1{,}200$ B. t. u. to accomplish our purpose.

In France, the unit adopted is the French Calorie. It is the amount of heat required to raise 1 Kilogramme (2.204 pounds) of water 1° Centigrade or 1.8° Fahrenheit in temperature, and is equal to 3.9683 B. t. u.

B. t. u. $\times$ .252 = Calories

Calories $\times$ 3.968 = B. t. u.

Effect of Heat.

When bodies are heated they usually undergo three changes, namely: (1) Change of temperature; (2) Change in size; and (3) change of condition.

Change of Temperature.

Almost all bodies, whether they be solids, liquids, or

gases, rise in temperature when heat is applied, and fall in temperature when heat is abstracted. This can readily be proved by heating various substances and bringing a thermometer into contact with them.

Expansion and Contraction.

The change of size, known as the expansion and contraction of different bodies play a very important part in the science of sanitary and heating engineering.

Almost all solids expand when heated and contract when heat is abstracted. In the expansion of solids we

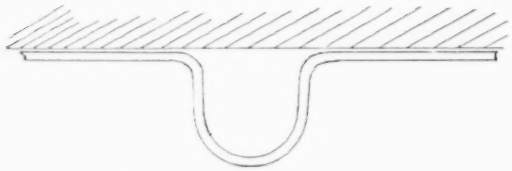


Fig. 2.

sometimes refer to change of volume and sometimes to change of length.

Assume a piece of lead increases its length 1 per cent, while its breadth and thickness remain unaltered, its bulk or volume will increase by 1 per cent. Let us now assume its breadth is increased by 1 per cent, the volume will receive a new addition of 1 per cent. Finally assume the thickness has increased by 1 per cent, the volume will once again be increased by 1 per cent, making in all an increase of 3 per cent in the three linear dimensions.

The expansion, either length or volume, due to a change of 1° in temperature, is called the co-efficient of expansion, and varies for the same substance at different temperatures, usually it increases as the temperature increases.

The metals, which sanitary and heating engineers are interested in, do not expand alike, and the following gives their correct order, the first possessing the greatest proportion of expansion and the last the least: Zinc, lead, solder, tin, brass, copper, wrought iron and cast iron.

Lead when heated from 32° Fahr. to 212° Fahr. has a linear expansion of 1 in 360. Obviously, a very small amount, yet the results are most serious.

Take for example the insanitary lead-lined sink, which is still advocated by a few of the old school of plumbers. The flow of hot water expands the lead, next comes the cold water causing it to contract, and this continuous expansion and contraction eventually cracks it. The crack is soldered and insult is added to injury, for the procedure renders the expansion and contraction uneven, and in a remarkably short time another crack appears right by the edge of the solder where the irresistible expansion was retarded.

Where lead is adopted as a roof covering, the greatest care has to be exercised in arranging each piece in such a manner that it has perfect freedom to expand and contract, otherwise it will crack and the results are very serious. It is a common practice to arrange the drips in gutters at intervals of every eight feet, and no piece of lead should contain more than eighteen feet.

Most plumbers are aware of the fact that lead contracts on cooling, and if the lead joints on cast iron pipes are imperfectly caulked to solidify and make good the contraction of the lead, they rarely stand the test to which they are subjected.

The expansion and contraction in wrought and copper hot water pipes must be provided for by fixing them on rollers and using wide radius bends. A one-piece expansion joint in which no packing is required is also made, which takes up less space than loops or U bends. This article operates on the principle of an accordeon, a series of deep corrugations being provided which, in high-pressure joints, permit a play of two inches. The corrugations, being machined from a solid block, are very durable. Limiting bolts, whose range can be adjusted by means of nuts, prevent too great expansion and contraction.

When long lengths of iron or copper pipes are used, the expansion and contraction can be provided for by using bends made to large sweeps, and by adopting loops or U bends made from the pipe, without joints, as shown in Fig. 2.

Cast iron pipes installed horizontally should be laid on wrought iron pipe rollers and must have perfect freedom to expand at both ends. Expansion joints, similar to those previously described, are necessary on vertical runs.

Pipe hooks should never be used to fasten them to walls, as the constant thrust and pull will eventually loosen the hooks and doubtless produce traps, air locks, etc., if the pipes are in long lengths.

Where hot water pipes pass through plastered walls they should be wrapped with asbestos or similar material, which will take care of the expansion and contraction, and obviate damage to the interior plastering.

A very excellent example to show the expansibility of copper is to use wiped or soldered joints in connection with hot water pipes. No matter how excellent the joints, the unequal expansion and contraction of the solder and copper will cause the joints to leak in an astonishing short time.

The expansion of air is of great importance to all sanitary and heating engineers. It plays an all important role in the ventilation of buildings.

In gases, no cohesion exists between their particles; in fact, they are self-repellant and expand themselves so as to occupy the whole space, in which they are confined. This is readily observed in the event of the slightest escape of sewer or coal gas into the building.

Air expands or contracts .00203 of its volume for every degree it is above or below 32° Fahr., and this expansion is forever taking place in the atmosphere, producing the winds, likewise in the rooms of all buildings setting up winds on a small scale.

The air, when heated by any method, in any room expands, and the excess volume escapes through the ventilator outlet, or up the chimney, fresh and colder air entering through every available opening and keeping up an everlasting movement.

Change of Condition.

Besides change of temperature and size, practically all bodies change their condition when heated. Take for example lead. If heated to 612° Fahr., it changes from a solid to a liquid, and if we continue to heat it, the oxygen in the air oxidizes the surface and converts it into litharge, an entirely new substance with chemical and physical properties different from the original lead. Further, a considerable quantity of the lead volatilizes, or passes off as a vapor. Again, if we heat ice, it changes to a liquid, water, and on reaching 212° Fahr. it changes into a gas steam.

Peculiar Properties of Water.

That there are exceptions to all rules is a truism, and the peculiar properties of water typifies this contention. Fig. 3 serves to illustrate what happens to water when heated and when heat is abstracted.

At 39° Fahr. or 4° Cent. the molecules of water are as closely packed together as it is possible to have them

under normal conditions, and at this temperature water reaches the point of maximum density.

In opposition to the general rule water expands on cooling and increases its volume until the freezing point is reached at 32° Fahr., or 0° Cent. It then expands 1-10 its own volume and is capable of exerting the enormous pressure of 33,000 pounds per square inch.

This expansion may be considered irresistible, and the smallest quantity of water confined in a crevice of a rock, when converted into ice, will dislodge a huge block weighing several tons.

Should a water pipe become frozen, the expansion of the ice tears a rent in it, whether it be iron, copper or lead, through which the water flows freely when the temperature rises above 32° Fahr.

Plumbers have done much the past few years to obviate the havoc wrought through bursted pipes, by placing them in positions where frost cannot hurt them, and when such a procedure is impracticable, care is taken to protect them with an adequate non-conducting material, such as hair felt, silicate cotton, etc.

When water is heated from 39° Fahr. to boiling point 212° Fahr., it expands approximately 1-25 its own bulk, so that in a domestic hot water system every 25 gallons will increase to 26 gallons when heated, and care must be exercised to make provision for this expansion.

If the hot water boiler is supplied direct from the

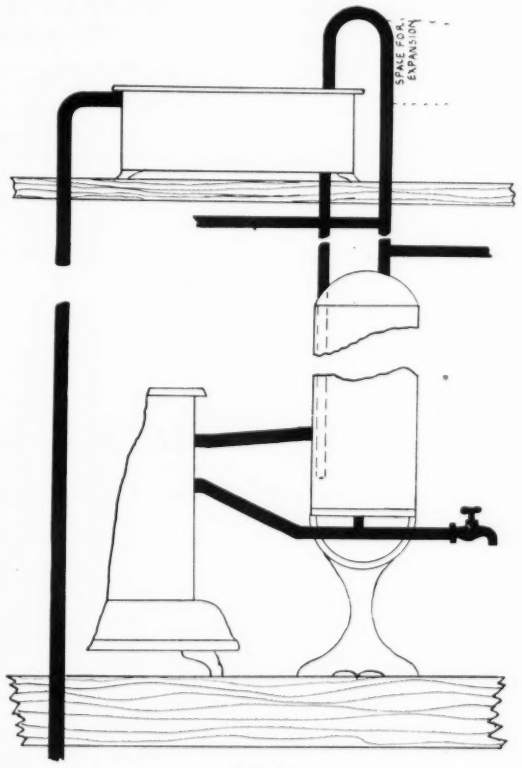


Fig. 4.

street pressure, no expansion tank or pipe is used, the expanded water simply forces itself back into the street main. However, should the boiler be supplied by gravitation from a tank fixed above the highest fixture, an expansion pipe should be taken off the top of the boiler and be carried well above, then discharge into the tank as shown in Fig. 4.

Assuming no provision is made for expansion in this instance, the water will be under pressure and will eventually force its way through the cold supply and water in the tank, or the weakest part of the apparatus will burst.

On reaching 212° Fahr. or 100° Cent. the water changes from a liquid to an invisible gas, steam, and expands 1,728 times its own volume. It might be well to emphasize that steam is a gas and cannot be seen. When

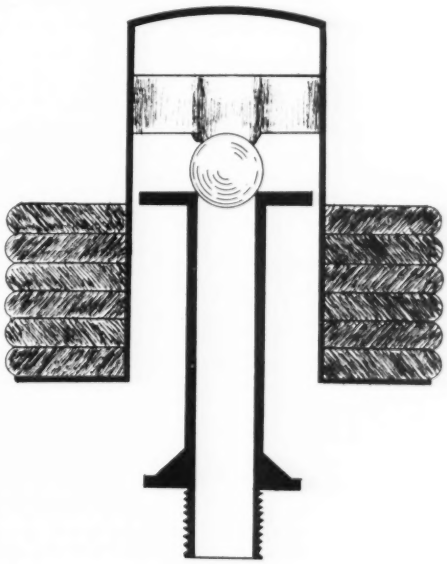


Fig. 5.

it comes into contact with the cold air it condenses, or forms water vapor which is, of course, visible. If it is further cooled it again turns into liquid and is termed distilled water. From this we learn that one cubic inch of water when converted into steam occupies a space of one cubic foot.

This extraordinary expansion has been utilized to excellent advantage throughout the world, and if we heat a small quantity of water in a receptacle of sufficient strength to retain the steam, twenty-four thousand horsepower can be attained.

Sanitary and heating engineers were among the first to grasp the vast opportunities presented through this expansion and they now furnish steam heat, at any desired pressure and in any building.

Many lives have also been lost, including some in our own profession, through the enormous development of power in the ordinary range heater. The failure of the water supply, through frost and other causes, permitted the heaters to become red hot, and the smallest quantity of water passing into them being converted into steam and confined, developed sufficient power to explode them, shattering the buildings and causing many fatal accidents.

Explosions can be obviated by fixing an adequate safety valve on the heater or as near the heater as practicable. The safety valve should always be the weakest part of the apparatus and when any undue pressure is brought to bear on the system, relief is found through this valve. Fig. 5 shows in section a dead weight safety valve of a good and sensitive type. It will be observed that where the two parts come together, one resembles a knife-edge and consequently insures safety.

Specific Heat.

When we speak of the "specific heat" of a substance, we mean the comparison between the amount of heat re-

(Continued on Page 383.)

LEGAL QUESTIONNAIRE

*Two Questions of Interest to the Trade Are Here Answered in a Most Careful Manner**

By "The Judge"

Person, Performing Work on Property Which Is Destroyed, Is Entitled to Payment for What He Did.

Editor "Domestic Engineering":—My automobile, which I had taken to a painter to be painted, was in a fire while in the painter's possession, and was so damaged that the work which had been done on it will have to be done over again. The painter was not to blame for the fire. The painting job had been almost finished, a coat of varnish being all that was lacking. Will I have to pay the painter for his work, from which I have received no benefit because of the fire? W. S. T.

Answer:—Although you do not so state, I assume that you are interested particularly as to whether the painter has a lien on your automobile for the work which he has done, for if he has not, you could take your car and then settle with him in the future, after going over the matter.

The question whether or not a lien attaches under these circumstances depends upon the law of the particular state in which the case arises. In your state, although this precise question has never arisen to my knowledge, in my opinion the painter will have a lien for the work which he has done, provided, of course, he still has actual or constructive possession of your car.

A lien, in a limited and technical sense, signifies the right by which a person in possession of personal property holds and retains it against the owner in satisfaction of a demand due him. In its more extensive meaning, as commonly understood, a lien is a legal claim or charge upon property, as security for the payment of some debt or obligation. It is provided by the statutes of your state that a person, who has a lien for money due him on account of work and labor, care and diligence, or money expended on or about personal property under a contract express or implied, may sell the property under court order within sixty days, because of the lien given him. This lien is different from what is commonly known as a Mechanic's Lien, and is similar to liens in favor of hotels, garages and livery stables.

To enforce his lien right, the painter must have possession of the property. If he has put it into the hands of one of his employees, or in somebody else's hands with a right to retake it, it is in his possession. If, however, he has surrendered it to you or some other person, and has thus lost possession, he has lost his right to a lien, although he will still have his claim against you, which he may pursue in the usual course by suit in court. A lien once lost will not be revived by a regaining of possession of the property. Also, if the property is taken from the workman by force or fraud, he does not lose his lien.

The painter will also lose his lien, if he retains your car upon some other grounds than the claim that he holds it under a lien. But a mere failure to assert the lien claim, without putting his right to hold the property on some other ground, does not amount to a waiver of the lien. It must also be remembered in such cases that the mere fact, that the painter makes an excessive demand for the work which he has done, does not destroy his lien rights if his demand is made in good faith and in the belief that he is really entitled to such a sum.

Naturally, if the painter has no valid claim for the work, he has performed for you, he has no lien. While this identical point has never been decided in your state with respect to lien rights, the question, whether a man has a valid claim for his work and materials under similar circumstances, has been decided. It was held in one case that, where a building mover had contracted to move a building and the structure was destroyed by fire while it was on its journey, he had a right to payment for what he had done. The court said: "The principle seems to be, that when, under an implied condition of the contract, the parties are to be excused from performance if a certain event happens, and by reason of that event it becomes impossible to do what was contemplated by the contract, there is an implied right to collect for what was properly done, the law dealing with it as done at the request of the other, and creating a liability to pay for its value to be determined by the price stipulated in the contract or, in some other way, if the contract price cannot be made applicable."

Authorities in different states differ as to the rights of the parties in such cases, but in your state the question has been definitely settled. These cases are not to be confused with other cases which on the face may seem to be very similar to the layman. For instance, if a man contracts to build a house and, before it is finished, the building burns to the ground, he must rebuild it and perform his contract, unless he wishes to make himself liable in damages. The difference seems to be that in the case such as you present, there is already in existence some object, the value of which is enhanced by work of one party, and the owner is the loser if the property is destroyed. In the other case the party agrees to furnish a new object or property, and if he does not, the other person has not benefited, if it is destroyed before completion.

As the painter, in your case, had performed work on property which belonged to you, and was therefore entitled to at least a certain part of the price agreed, he has a right to hold the auto until you pay him, or he can sell it after going through with the proper procedure. As a practical matter, it is probable that he will make some sort of a settlement with you, for if he refuses and resorts to his lien rights, it will cost him money and considerable time and trouble.

*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the very Nature of the Service, which is rendered without a personal Interview.—Editor.

This kind of a case is of interest to any plumber or other artificer who does repairing of any kind, for it means that if he takes the property of another and expends materials and labor upon it, he has a lien right and may hold the property until his claim is paid. It will not be of much use in most cases, however, for if the property is returned to the owner, as it almost always is, the right to a lien is lost. It might happen that a stubborn debtor might ask a plumber to do some work for him on a boiler, for instance, which could be taken to the plumber's shop, and the plumber could refuse to take it back until he had been paid. The lien right, however, extends only to the claim for work and labor done on the particular article, unless a particular article is one of several upon which work has been done under the same contract.

Can Party, who Is Partner in Two Different Firms, Join in Assignment for Benefit of Creditors by One Firm Without Disturbing Other Partnership?

Editor "Domestic Engineering":—I am a partner in two different firms, one of which is running behind slightly, with small prospect of better conditions, and the other is just about breaking even. One is a plumbing business, and the other a roofing concern. My partner in the firm that is running behind wants to make an assignment for the benefit of our creditors while we can make a fairly good showing. Is there any way that I can join in this assignment and still protect my interests in the other firm? T. E. H.

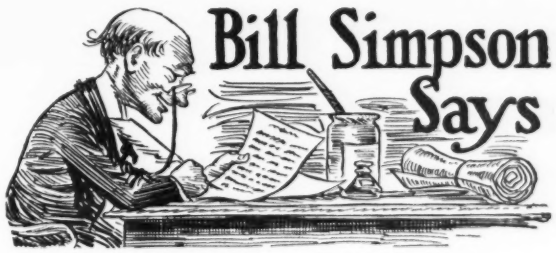
Answer:—In some states it is provided by statute that an assignment for the benefit of creditors must be of the insolvent person's entire property, real and personal, and that there cannot be partial assignments. In your state it is possible to make an assignment for the benefit of creditors of a part only of your property.

It is probable that, if your assets will make a good showing in the way of a dividend, your creditors might be willing to take an assignment of your partnership assets in that one firm and not insist upon an assignment of your interest in the other firm. Even though they insist upon a general assignment, it could probably be arranged for your partner in the other firm to buy you out. It is always to be remembered that an assignment for the benefit of creditors does not wipe out the claims of such creditors as do not join in the proceedings. If the number of your creditors is large, and your assets are but a small proportion of your liabilities, it might be that bankruptcy would be the best course for you to pursue. That would, of course, take all your property of every description.

When financial difficulties present themselves, as in your case, it is imperative that you seek the advice of your attorney, for there are many ways in which you can protect yourself legitimately, and the situation usually has many angles, which only one familiar with the law of your state can solve with any degree of success from your standpoint.

Such assignments are customarily the course taken by debtors whose creditors are in sympathy with the situation and wish to save themselves the expenses of bankruptcy proceedings incident to the winding up of a going business. It probably will be possible, if you can arrange it with your creditors, to make an assignment which will not affect your other partnership firm.

Be ready to buy Fourth Liberty Loan Bonds!



(With Apologies to K. C. B.)

We Americans invented
* * *
ADVERTISING,
* * *
And then the Germans
* * *
Appropriated it
* * *
(Like a lot of other things)
* * *
And brought it down to
* * *
A fine science.
* * *
At the present time
* * *
The German business men
* * *
Are rejoicing because
* * *
American firms are getting cold feet
* * *
And are cutting down their advertising,
* * *
Simply because the order books are
* * *
Filled at present.
* * *
When an American firm
* * *
Stops its advertising,
* * *
It is playing squarely
* * *
Into the hands of Germany.
* * *
To stop advertising
* * *
Is to withdraw actively
* * *
From the battlefield of
* * *
Business and Commerce.
* * *
This leaves the arena
* * *
Open and Vacant,
* * *
So that, when Peace again comes,
* * *
German business houses
* * *
Will be able to start
* * *
Right in from "scratch"
* * *
The same as Americans,
* * *
Who have had more than
* * *
Four years in which
* * *
To get a running start.
* * *
Germany is glad, when
* * *
American business men
* * *
Stop advertising—
* * *
Don't forget it.

QUESTIONS & ANSWERS

A NOVEL STEAM-AIR HEATING SYSTEM.

Editor "Domestic Engineering":—I am now installing a job, which is my own conception so far as I am aware of, as I never have heard of one of the same type. It is a steam-air system. The accompanying sketch illustrates the method of installation. I have inclosed a steam boiler with a galvanized casing similar to a furnace and run lines of tin piping to each room. In each of these pipes I run a line of 2-inch steam pipe to a point near the register and place a Sylphon quick-vent valve on the end. The pipe connections for safety valve, diaphragm and water column are extended through the galvanized casing surrounding the boiler.

This system can be installed for a little more than the cost of hot air and a great deal less than the cost of a

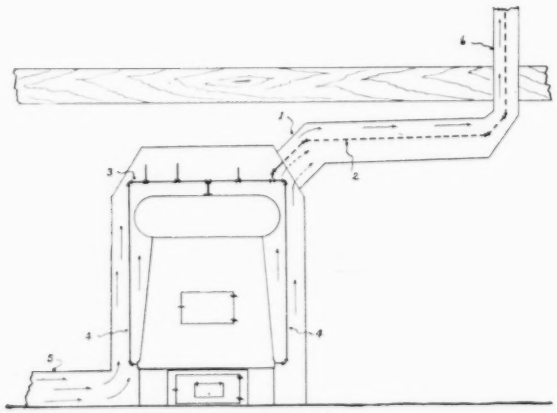


Fig. 1.

steam job. I am working on the principle that on the average steam job there is as much radiating surface in the mains and boiler as there is in the radiators and instead of covering this surface with asbestos I figure to use it instead of radiators.

The life of a steam boiler is many times that of a hot air furnace and hot air lines, which frequently do not work, will circulate at all times with a steam pipe inside to expand and heat the air. The fire box of a steam boiler is smaller than that of a furnace of the same comparative size, and therefore the boiler should consume less fuel. In estimating steam heat we allow 25 per cent for heat loss in boiler and piping, while in a steam-air system there is a very slight heat loss.

The cost will exceed hot air very little, as the cost of the galvanized casing and hot air lines will about equal the cost of asbestos cement and covering, and it looks to me like a very moderate priced heating plant.

I should like the opinion of the trade as to the theory and practicability of the steam-air system as outlined above.

Michigan. C. A. B.

Correspondent presents a rather novel method of installing a heating apparatus. We show by Fig. 1 the method of installation, as outlined in the communication and illustrated by the sketch submitted. The pipe extensions through casing for the safety valve, diaphragm regulator and water-column are omitted on the sketch. The various parts of the system are indicated by numerals, "1" being the tin leader or hot air pipe, "2" the 2-inch steam pipe running through the same, "3" the pipe header above the boiler, "4" the equalizing pipes connecting the ends of the header with the return openings of the boiler, "5" the cold air connection at bottom of the casing, and "6" the hot air riser to the register.

The arrows shown indicate the direction of the air in its passage through the casing surrounding the boiler. Due to the fact that the cold air enters at the bottom and rises without obstruction or deflection against the heating surfaces of the boiler, there will be but a comparatively small amount of heat imparted to it by the boiler, as it rises and enters the hot air pipes or leaders. Probably this heat will not approximate 50 per cent of that given off by a furnace, having the same or equal area of heating surface, and in addition the furnace is provided with a hot air radiator or drum, through which the smoke and hot gases pass on their way to the chimney. With a furnace the cold air entering at zero is warmed to a temperature from 150 to 180 degrees Fahr. and enters the room through register at a temperature some 20 or 30 degrees less.

The system, outlined by correspondent, may be likened, in many respects, to an indirect steam heating system, and without a technical or B. t. u. consideration of the method it is apparent to us that there is not sufficient radiation provided to successfully warm the rooms of a residence. A few figures and a simple comparison of radiation requirements will show this.

By the ordinary method of figuring we determine that each room will require 50 per cent more indirect than direct radiation to warm it. Suppose that an eight-room residence is to be warmed, the rooms being 12x15 feet in area and 10 ft. high. Glass surface 54 sq. ft. (three windows 3x6 ft.) and exposed wall surface 180 sq. ft. For direct heating each room will require 44 sq. ft. of radiation, or for indirect heating 66 sq. ft. For indirect steam therefore eight rooms will require 8x66 or 528 sq. ft.

If installed as is usual with indirect radiators, each sq. ft. will give off approximately 350 B. t. u. per hour, and 528×350=184,800 B. t. u. given off by all of the radiators or required for the eight rooms.

To estimate the radiating surface as provided by correspondent, we may consider that for direct heating a boiler of 500 sq. ft. capacity would be required. This boiler would have a grate 24 inches in diameter, and the exterior diameter would not exceed 32 inches. The boiler would stand about 4 ft. 6 in. above the base (no heat of any consequence is radiated through the base). The exterior surface of a 32-inch cylinder, 4 ft. 6 in. high, is 38¾ sq. ft. The surface in one end (representing the top of the boiler) is 5½ sq. ft., making a total of the radiating surface of the boiler of 44¼ sq. ft.

Suppose that there are eight hot air pipes each 20 ft. long

and containing a run of 2-inch pipe; $20 \times 8 = 160$, and in this amount of 2-inch pipe there is 99½ sq. ft. of surface, which added to the surface of the boiler gives a total of 143¾ sq. ft. of indirect surface to warm the eight rooms mentioned, which of course is absolutely impossible. Should this surface be placed under the most favorable circumstances and in the most approved manner, it could not furnish sufficient heat.

As we have already stated, the idea is somewhat novel, but the method as we see it is not practical. As to the cost, as compared to a hot air furnace, we have made no comparison.

WANTS INFORMATION ABOUT VENTING HEATING SYSTEM PROPERLY.

Editor "Domestic Engineering":—I have been asked to install a hot water heating system, in which the boiler and coils are to be located on the same floor, the coils to run under the windows in spite of the fact that there is only three feet from the bottom of the boiler to the under side of the windows. I am to install eight pipe coils of 1¼-inch pipe on each side of the building, and I intend to carry the flow pipe to the front of the building and make its high point, where it leaves the boiler, and grade to the front of the building, drop down and feed coils. I'm not sure that this layout will vent the system properly, and I would like to ask you to explain the best and simplest way of venting a system of this kind.

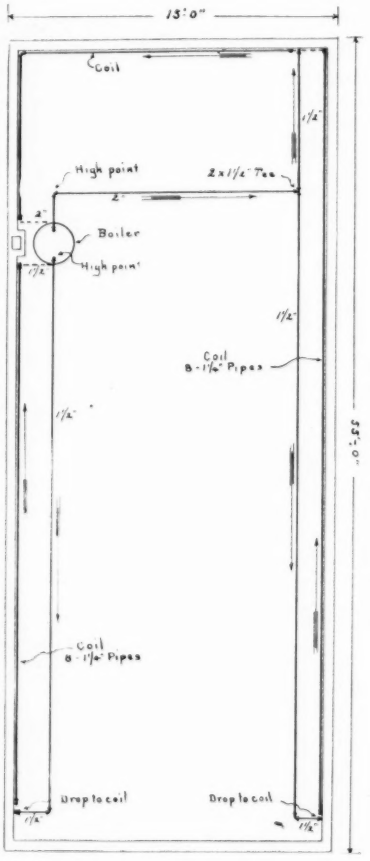


Fig. 1.

The owner will not allow me to put the coils anywhere but under the windows. I never have had any experience in the installation of a plant of this kind, therefore, need all the information you can give me

Connecticut. H. H. H.

The sketch submitted with the above letter is shown as Fig. 1, and we have incorporated with it such details as will explain more clearly the answer to correspondent.

The sketch shows a floor plan of a small one-story building 15 ft. wide by 55 ft. long. No details as to windows and doors are given and we assume that the windows are on each side and possibly at the rear of the building and the doors at the front. The fact that the windows are 3 ft. above the floor provides an excellent opportunity for placing the coils under the windows, in which location they will do the best work.

Owing to the fact that the boiler is located on the same floor, it will be well to keep the coils as high as the conditions will allow, and to help the circulation the mains should be run as high above the coils as possible. The general method of piping suggested is very good. The supply mains rise to the high point of the system immediately above the boiler and pitch downward as they approach the front of the building, and at the ends drop down to supply the coils on either side. Correspondent shows a 1½-inch branch, running towards the rear of the building, and we therefore assume that a coil is located here and have shown the same on the sketch. We do not like the method of using a tee bull-head in connecting this branch. Bull-head tees should be avoided on all heating work and for supplying this branch a 2x1½-inch tee should be placed on the main, which should be extended a few inches with a short nipple, and then at the end use an elbow to supply the branch running towards the front of the building.

If properly erected this system will be vented automatically through the expansion tank, and therefore no air vents are required. From the top of the system, at each of the high points indicated, an air and expansion line should connect to the expansion tank, which should be located 18 in. or 2 ft. above the piping. If convenient each of these air lines may rise above the piping system and then be joined together into a single pipe connecting with the tank. From the high points all piping—mains, branches, coils, and returns should pitch down to the point, where the returns are connected to the boiler. The slight rise or step-up of the returns to enter the boiler will not interfere with the circulation, if the bottom of the coils are kept above the return openings of the boiler. The return from the long coil on the side opposite to the boiler can be run under the coil at the rear of the building, and by giving a good pitch to all piping and coils, and avoiding traps, the system will be constantly freed of air. The arrows shown on sketch indicate the direction of the pitch to be given the pipes.

On the sketch submitted by correspondent the drop to coil at the end of each main is shown reduced to 1¼-inch. This is wrong as the drop should be 1½-inch, the full size of the supply and should be connected 1½-inch to the coil.

Valid Distinction in Taxation of Junk Gatherers of Plumbing Fixtures, Etc.

The general tax ordinance of the city of Atlanta for the fiscal year ending June 30, 1916, contained three provisions for business licenses, as follows: A. "Junk gatherers, by wagon or otherwise, of plumbing, gas fixtures, automobile fixtures and other metals, each gatherer, $300." B. "Junk gatherers by wagon or otherwise, bottles, rags and paper, each wagon, $25." C. "Junk shop or dealers in old rope, brass, or rags, whether in connection with any other business or not, subject to ordinance regulating same business, * * * $50."

The Supreme Court of Georgia holds, in Melnick et al. vs. City of Atlanta, 94 Southeastern Reporter, 1015, that classification A partakes of the nature of a police regulation, and, considering the nature of the business, is reasonable. It is not discriminatory on account of anything expressed in classifications B and C. Being within the police power, classification A does not prima facie offend the due process or equal protection clause of the Constitution.

The DAY BOOK *of the* BON TON DE LUX PLUMBING & HEATING CO.

Jerry Dolan's Record of the Interesting Happenings of the Day

(Continued from Page 326 in the August 31st Issue.)

August 31, 1918.

I heard a pretty good one about a couple of the old timers. Many years ago one was working as a helper out at the University Farm School away back in the good old days, and when dinner time came around he located some very fine cream, and so he and the plumber had lots of cream for a couple of weeks, until one day one of the professors caught him pouring out a couple of quarts, and he told the helper that they had been trying to find out why it was that one of their prize cows was running so far behind her usual record, and evidently the plumbers were the cause. After that they got all the milk and cream they wanted, but the professor set it to one side for them so as not to interfere with the records.

September 1, 1918.

The State Fair opens tomorrow, so Mrs. Dolan and I went down that way today to watch them unloading the horses and pigs and cattle and everything. It looks like barley agrees with the stock better than with human beings.

September 2, 1918.

This is another of those days that the calendar makers print in red ink, and they call it a holiday in some states. We call it Labor Day in Minnesota, and it is supposed to be a day of rest, but me and the missus done more work today than we usually do in a week. You see, some of her relatives from the farm hit town yesterday afternoon, and so they parked their seven passenger cars out in front of our house, and it looked like we was entertaining royalty. I would have asked them to put their cars in our garage, but you see all me and the missus got is a flivver roadster, and our garage is a couple of old piano boxes and it's a tight fit for the flivver, so it wouldn't be big enough to house the radiator on either of the rubes' cars. They were pretty tired from their ride and hit the hay early, and we went out in the garden and picked a few bushels of tomatoes and corn and dug up another bushel of spuds, and then we cleaned them up all ready for the pot, and then we got up about ten minutes after midnight and started all that stuff to cook, and it wasn't much after that when the gang came to life, and it's a lucky thing there's a bakery across the street and that our garden was doing its duty, or else those birds from the farm would have starved to death. You know these regular farmers are sure good eaters, but the missus was wise and she was ready for them. And after breakfast, we hopped into their big cars and rolled over to the Fair Grounds, and we only had to wait an hour or so for them to open the gates, we was that early. And when we got inside, we parked the cars and started out to see the sights. I saw some boilers and bath tubs and electric lighting plants and wanted to stop and give them the once over, but there wasn't a chance; those rubes wanted to see the live stock and, while pigs is pigs with me, those farmers was all from Missouri, and we spent the whole morning looking at the live stock, and then we had a picnic lunch that Mrs. Dolan had brought along in a couple of clothes baskets, and after dinner we looked over the tractors and the machinery and saw the horse races from Machinery Hill, where it don't cost anything extra, all you got to do is fight for a place with about 999 other birds wanting the same place at the same time, and then we ate what was left from dinner and wandered around to the stock barns again, and just before the evening show started I suggested we had better get seats in the grandstand for the big show and the fireworks or else look for a place in the emergency hospital, and they picked the grand stand, and, if anyone had picked my pocket before we got to the ticket office, we would have seen the fireworks from Machinery Hill, too.

September 3, 1918.

This morning the rubes started back for the farm at about 4 bells. I guess they wanted to get back in time to help with the milking. Me and Mrs. Dolan got up early and fed 'em well and told 'em to hurry back, then we went back to bed to get a little sleep and rest. About 10 o'clock Hank called up to find out if we was dead or alive, and I told him that I had walked more miles yesterday than Old Man Weston ever walked in his palmiest days, and so he says to stay home and rest, and he would run the shop because there wasn't anything doing, and all the salesmen were down to the Fair Grounds

September 4, 1918.

I've been running the shop today, and Hank went over to the Fair. He's a wise old bird. He went over all alone; says he wants to see the auto races and hopes nobody gets tangled up with the fence or the grandstand or anything like that, but if they do he wants to be where he can see it.

September 5, 1918.

A while ago, a customer came in here with blood in his eye and a fixed determination to clean up the place. He claimed we were trying to rob him, and the more we explained the madder he got, and so finally he says he is through with us for life, and he beats it, but the books show that he owes us a small bill and so we sent him a copy of this bill on the first of the month and a little reminder to the effect that he would not be through with us until he had cleaned the slate and today he came in very meek and mild and paid up like a little man, and then he says he is sorry he flew off the handle a few weeks ago and wants us to do some more work for him. When he went out, I felt like that fellow on the back page of the Journal with "that grand and glorious feeling." It's a fine business to be in all right.

September 6, 1918.

A lady called up this morning and wanted a plumber in a hurry to clean out a sink waste pipe, and she gave me the address and I asked her, if she owned the place and she says "No," and I asked her if she was prepared to pay the bill to the plumber as soon as he would get through, and she went up in the air a mile and informed me "that the landlord would pay the bill," and so I told her to get the landlord to send in the order himself, and she comes back with "you have a funny way of doing business," and so I hung up the receiver. I haven't heard from her landlord yet, and maybe it's just as well, because if I went over there now, she might accidently spill a pail of water or something like that, and it would be just my luck to be on the receiving end.

(To be Continued.)

Helpful Corporation.

Pat: "This is the foist time inny of these corporations hev done innything to binnefit the workingman."

Mike: "How is that, Pat?"

Pat: "It is this siven-cint fare. I hev bin walkin' to and from me work and savin' tin cints, and now I kin save fourteen cints."—"Boston Transcript."

DRESS UP!

How a Plumbing Contractor Made His Business a Success

By William Robert Marshall

JOHN ATKINS is a plumber located in a small town at the foot of the mountains. The shop is the oldest in the not over old town, situated on the main street, next to the bank.

John came from St. Paul, Minn., a few years ago with a little money he had saved out of his earnings as a journeyman plumber, seeking a more clement climate in which to spend the balance of his life.

"What Do You Mean, 'Outshine' Him?" He Asked Interestedly.

He had purchased the store, fixtures (?), stock (?), good will (?), etc., for five hundred dollars and began life as a regular dyed-in-the-wool master plumber.

I met John for the first time on one of the periodical trips which I took with our salesmen. He was not over-optimistic regarding the future, as business had not been very brisk with him since he had started. Furthermore he had a lively competitor in a chap, who had his shop in his barn, located on the outskirts of the town. This competitor had been in business for a number of years and was well acquainted, besides he had considerable capital, or good credit, which is just as good, upon which to do business.

John and I talked about the possibilities of business in his town and the surrounding country and also the question of how to best combat the "killing" price competition of the fellow down the road, who, you can imagine, was not a customer of ours. John told me his neighbor was either out-buying him about ten per cent, or he was doing work for about journeyman's wages, which he assured me he would never do as long as he posed as a master plumber.

"Well, John," I said, "the only way that I can see to get a jump on this fellow is to 'out-shine' him."

"What do you mean, 'out-shine' him?" he asked interestedly.

"Oh just be so far above him that you will not be considered in the same class," I replied.

"Oh there isn't anything stuck-up about me, I'm good friends with him and all that," he assured me, having misunderstood my remark.

I laughed at him and explained just what I meant by out-shining him.

"You misunderstand me John. I didn't mean for you to snub him when you met him on the street. I meant to have your *business*—your *place* of business and your *way* of business so much better than his that your *business* would out-shine him."

"Suppose you tell me how you would go about it," he suggested.

I looked around at the old desk, the broken swivel chair, a dilapidated row of shelves, an old iron pipe railing, and a clutter of junk on the floor, a dirty cretonne half-curtain across the front of his show (?) window and the pile of tarnished fly-specked faucets and rubber goods articles in the window, and said: "You will have to spend some money to buy some new fixtures—clean up the place—paint the floor—and put in a stock of brand new goods."

John gazed at me evidently offended at my lack of appreciation of his new business.

"This isn't any ice cream parlor!" he assured me.

"Don't worry any," I laughingly replied. "Nobody will ever accuse you of having one."

"I spent all the money I can afford when I bought this place," he replied.

"Well, John, you asked me for advice, and I gave it to you, and you received it just as advice is generally received. It's fine, when it agrees with your own ideas, and bum when it differs, but if you want to get the jump on that chap down the street *you* have got to be different. *Your place of business* has got to be different, and *your stock of goods* has got to be different. *You* have got to dress up, and *your shop* has got to be dressed up, and *your stock* has got to be dressed up."

These probably are not the correct words, but they represent just what I said to John, and I saw John didn't thank me for them.

That was about eight months ago. The other day I was out in John's town and dropped around to see him.

You wouldn't have recognized it as the same place. The front was freshly painted, a new sign hung over the door, a small range boiler, painted red with the word—Plumber—on its side in white letters, stood about four feet from the pavement on a pipe standard painted black; from the top of the boiler arose a miniature flag pole from which a small "Old Glory" waved to the wind's caprices.

The show window was neatly arranged with a miscellaneous assortment of faucets, rubber goods, bath room accessories, enamel cleaners, pipe-openers, toilet paper, etc.

I opened the door and went in. If the outside was a surprise the inside was a knock-out.

"Hello there," was the hearty greeting called out from behind a new flat top desk.

"Hello John!" I shouted. "Gee whiz, I hardly knew you in the new scenery."

"Some change, hey?" he asked proudly.

"Some change is right," I agreed.

I took a seat at his invitation, after shaking hands and remarked: "You certainly have changed the old boat, John, into a *regular place*."

He smiled pleased at my observation and acknowledgment of his effort.

"Yes, sir, it certainly does look different, doesn't it?"

"It does!"

I glanced around the store—it would be wrong to call it a shop,—and I saw that he had added a complete electric accessories stock, and that he had an electric washing machine and several water heaters, some storage tanks, and a lot of other goods, which were not in the place when I called the first time. The floor was painted dark brown, and several rugs helped out the color scheme. A clean, nifty curtain ran across the front window on a brass rod, but the biggest change was in John himself. The last time I saw he had on a pair of overalls, his shirt was open at the neck and his sleeves rolled up to his elbows. Now—he was *dressed up*.

"You certainly look prosperous around here, John," I remarked.

"Doing pretty good,—doing pretty good," he replied rather chestily.

"Doing much work?" I inquired.

"Enough to keep two journeymen going."

"Quit working yourself?"

I fancied John blushed a bit.

"Oh I don't have time to go out working now. You see it keeps me busy in the store most of the time. I have a big retail trade in all this stuff," he waived his hand so as to take in the entire store.

I nodded my head. "It pays, doesn't it?" I inquired quietly.

John smiled rather shamefully. "Yes, it sure does,—and I ain't above telling you that I thought you was nutty the first time you called on me, but I soon saw you had the right dope. Yes sir—it pays to dress up."

Convention Dates

September 11 and 12, 1918.—The fall meeting of the National Association of Brass Manufacturers, in Cleveland, Ohio, at the Hollenden Hotel.

October 9, 1918.—The annual meeting of the Eastern Supply Association, at the Hotel Astor, New York City.

October 14 and 15, 1918.—The annual meeting of the American Society of Sanitary Engineering, at Chicago, with headquarters at the Congress Hotel.

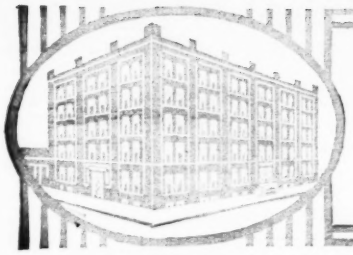
October 14 to 17, 1918.—The annual convention of the American Public Health Association, at Chicago.

October 16, 1918.—The fall meeting of the Central Supply Association, in Chicago.

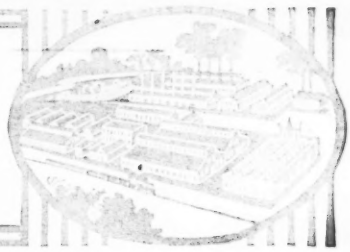
French Red Cross Thanks Ladies' Auxiliary to Indiana Society of Sanitary Engineers for Donation.

The Ladies' Auxiliary of the Indiana Society of Sanitary Engineers has recently received a letter of acknowledgment from the Central Committee of the French Red Cross, Paris, thanking the auxiliary for its patriotism and lofty sentiments toward France, as indicated in the donation last March of $100 to the Red Cross of that nation. The letter was addressed to "Madame la Presidente," Mrs. Allen J. Weinhardt, of Terre Haute, Ind. The other officers of this patriotic auxiliary are Mrs. A. E. Werkhoff, of Lafayette, vice-president, and Mrs. John M. Freitag, of Terre Haute, secretary and treasurer.

Fourth Liberty Loan September 28th to October 19th. Get ready for it.



Among the Wholesalers and Manufacturers



THE NATIONAL ASSOCIATION OF BRASS MANUFACTURERS TO MEET SEPTEMBER 12th.

The meeting of the National Association of Brass Manufacturers, which was to have been held September 17th and 18th, will be held September 11th and 12th at the Hollenden Hotel, Cleveland, O., according to official call just issued by Commissioner Wm. M. Webster, of Chicago. A smoker will be held Wednesday evening, September 11th, and the meeting proper will be called Thursday morning at 10 o'clock.

THE ANNUAL MEETING OF THE EASTERN SUPPLY ASSOCIATION.

The Eastern Supply Association will hold its annual meeting at the Hotel Astor, New York City, on Wednesday, October 9th, the schedule for its sessions being as follows: Opening session, 10:30 a. m.; Members' Luncheon Council, 12:30 p. m.; afternoon session, 1:30. The directors will meet Tuesday, October 8th, at 12:30 p. m.

In issuing the official call to this meeting, Frank S. Hanley, secretary of the association calls attention to the new draft law as follows: "We ask you to give full publicity in regard to this law, placing posters in a conspicuous place in your plant or establishment. It is estimated that about 13,000,000 men will be registered in a brief period, and in order to do this, co-operation of all employers is requested. Remind your employes of registration day by inserting a brief reminder in pay envelopes on the last day before registration day. It is also suggested that individual employers arrange to give all employes the necessary time for registering on registration day. This is pursuant to suggestion of E. H. Crowder, provost marshal general, through the Chamber of Commerce of the United States."

Mr. Hanley also calls attention to the fact that the Navy Department, Bureau of Supplies and Accounts, Division of Inland Traffic, has issued a circular impressing upon all concerned the absolute necessity for co-operation in the endeavor to have moved during the period prior to the time for bad weather such materials and supplies as are or will be needed later. This will to a great extent confine subsequent movements to actually current and imperative needs and will materially assist in the endeavor on the part of the director general of railroads to keep the transportation situation under control. We trust all members will actively co-operate with the Navy Department in this particular.

RAEBECK & ZIMTBAUM IN NEW LOCATION.

Raebeck & Zimtbaum, of Brooklyn, N. Y., are moving their factory and main office from 100 Jewell Street to 16-26 Eckford Street, where they have purchased a large building, giving them much larger space than in their old plant. The new building is a four-story structure and has been equipped with modern machinery for the manufacture of closet seats and tanks.

PRATT & CADY CO. BUYS LARGE MANUFACTURING PLANT.

Pratt & Cady Co., of Hartford, Conn., has just purchased I. B. Davis & Son's plant on Cushman Street, in that city, including two brick factory buildings, and a frame storehouse, as well as the manufacturing business of I. B. Davis & Son. Pratt & Cady Co. intends to continue the manufacture of the Davis products.

WAR SERVICE COMMITTEES IN THE PLUMBING SUPPLY TRADE.

Frank S. Hanley, of New York City, secretary of the National Committee of the Confederated Supply Associations, has just issued a bulletin stating that pursuant to the suggestion of the War Industries Board the following organizations have War Service Committees, available for instant use:

National Committee of Confederated Supply Association: L. O. Koven, chairman, 154 Ogden Avenue, Jersey City, N. J.

National Association of Brass Manufacturers: Adolph Mueller, chairman, H. Mueller, Mfg. Co., Decatur, Ill.; Charles C. Hale, the Peck Bro. & Co., New Haven, Conn.; E. L. Strauss, Central Brass Mfg. Co., Cleveland, Ohio.

Central Supply Association: George H. Bailey, chairman, Bailey-Farrell Mfg. Co., Pittsburgh, Pa.

Eastern Supply Association: John A. Murray, chairman, John A. Murray & Co., 310 West Thirty-ninth Street, New York City; John McClure Chase, vice-chairman, W. A. Case & Son Mfg. Co., Washington, D. C.

Earthenware Manufacturers' Association: John A. Campbell, the Trenton Potteries Co., Trenton, N. J.; A. M. Maddock, Thomas Maddock's Sons Co., Trenton, N. J.; Philip J. Faherty, Lambertville Pottery Co., Lambertville, N. J.

Enameled Ware Manufacturers: J. F. Conran, Standard Sanitary Mfg. Co., Pittsburgh, Pa.; A. H. Cline, Jr., U. S. Sanitary Mfg. Co., Pittsburgh, Pa.; J. B. Murphy, Kohler Co., 763 McCormick Building, Chicago, Ill.; T. R. Barnes, Barnes Mfg. Co., Mansfield, O.; George D. McIlvaine, chairman, Oliver Building, Pittsburgh, Pa.

Range Boiler Manufacturers: Victor Mauck, chairman, John Wood Mfg. Co., Conshohocken, Pa.; L. O. Koven, L. O. Koven & Brother, Jersey City, N. J.; H. S. Whisler, Pennsylvania Range Boiler Co., Philadelphia, Pa.; J. V. Scaife, Wm. M. Scaife & Sons Co., Oakmont, Pa.; J. P. Fell, W. A. Case & Son Mfg. Co., Buffalo, N. Y.

Soil Pipe and Fittings Manufacturers: W. A. Brecht, Krupp Foundry Co., Lansdale, Pa.; W. J. Kirby, Somerville Iron Works, Somerville, N. J.; M. W. Bush, Coosa Pipe & Foundry Co., Birmingham, Ala.; M. M. Hedges, the Casey-Hedges Co., Chattanooga, Tenn.; deCourcey Cleveland, chairman, the Central Foundry Co., 90 West Street, New York City.

Woodwork Manufacturers: W. J. Cram, the Becker Mfg. Co., Marietta, O.; A. W. Stedman, Standard Tank &

Seat Co., Camden, N. J.; Charles Pfau, Pfau Mfg. Co., Cincinnati, O.

OPEN OFFICE AS MANUFACTURER'S AGENTS.

Evins F. Glore and Jack Major, both well known to the heating trade in the East, have opened offices as manufacturer's agents in the Architects Building, 101 Park Avenue, New York City. The firm will do business under the name of Evins F. Glore, and will represent the Detroit Lubricator Co., of Detroit, Mich., and the Beckwith Co., of Dowagiac, Mich. Mr. Glore has been connected with the heating trade for a quarter of a century, having been manager of branch offices of the American Radiator Co., and the Richardson & Boynton Co., and sales manager of Pierce, Butler & Pierce Manufacturing Corporation. Mr. Major has been connected with the sales force of the Richmond Radiator Co. for the past five years.

APPLICATION OF MAXIMUM FIXED PRICE DEFINED.

Resolutions formally defining the Government's policy of applying maximum fixed prices were announced last week by the Price Fixing Committee of the War Industries Board.

Whenever stipulated that the prices are fixed for the United States Government and associated governments in the war and the public, such prices are declared by the committee to extend to the "Government and civilians of the United States (including civilians of its territories and insular possessions) and to the following Governments: Great Britain, France, Italy, Belgium and Japan."

The maximum prices are not to be extended to purchases made by the civilians of the six named Allied nations, nor to the governments or civilians of nations not included among those opposed to Germany, the resolutions provide.

This action by the board more clearly defines the policy that has been followed since the Government first undertook to fix the maximum prices for commodities in such great demand by the United States and the Allies that a shortage for civil requirements was threatened.

WAR DEPARTMENT PLANS FOR THE EXPANSION OF CAMPS.

The War Department authorizes the publication of the following statement:

Expansions of camps and other changes at training centers have been decided on as follows by the general staff:

Camp Hancock, Ga., is to be a machine gun center and will be enlarged to accommodate between 55,000 and 60,000 men. The officers' training school, now housed in tents at this point, will be provided for in barracks and quarters similar to those already erected at other cantonments. The improvements for this purpose will cost about $2,000,000. This figure does not cover the increased cost for other construction that will be necessary to care for the increased number of men to be located at this camp.

It has been decided to make Camp Grant an infantry replacement camp to accommodate between 55,000 and 60,000 men. The present capacity of this camp is about 42,000. The alterations and additions made necessary by this change will be made after the division now located there is moved.

Field artillery firing centers are to be located at West Point, Ky., Camp Jackson, S. C., and at Fayetteville, N. C. Options on sufficient land for this purpose have been secured at all these places. It is planned to locate six brigades at Fayetteville, six at West Point and four at Jackson.

It has also been decided to erect permanent buildings for the officers' training schools at present housed in tents at Camps Lee, Gordon and Pike. These schools have a capacity of about 6,000 men. The estimated cost of erecting barracks and quarters and doing other construction work at each of these schools is about $2,000,000.

GOVERNMENT ANNOUNCES HOUSING PLANS.

The Department of Labor, of Washington, D. C., has just issued a statement reviewing the various stages through which the Government housing program has been developed. This statement mentions the sum of $100,000,000 which has been alloted to the department, aside from the $50,000,000 appropriated to the Shipping Board for housing purposes. Part of the statement reads as follows:

"Even with a sum of this magnitude, it is manifestly impossible for the Federal Government to assist every community which is embarrassed by a housing shortage. As a prerequisite to affirmative action, therefore, it insists upon certification by that branch of the War and Navy Department interested in the fulfillment of war contracts, that additional housing in the particular locality is absolutely essential to the successful prosecution of the war program. Requests from communities failing to secure this certification are not entertained. Investigations are also instituted with a view to ascertain whether the needs of the situation may be met by inducing owners of existing homes to throw open their houses to war workers, or whether the improvement or extension of transportation facilities in communties contiguous to the manufacturing centers may be procured. Considerable success has attended the bureau's efforts through both of these mediums and as a consequence the expenditure of millions of dollars in the creation of additional housing has been obviated.

"In the following industrial centers, however, it has been found impossible to solve the problem through either of the aforementioned methods and developments of varying degrees of magnitude have been projected:

"Alliance, Ohio; Aberdeen, Md.; Bethlehem, Pa.; Bridgeport,, Conn.; Bath, Me.; Bettendorf, Iowa; Butler, Pa.; Charleston, W. Va.; Dayton, Ohio; Davenport, Iowa; Erie, Pa.; East Chicago, Ind.; Elizabeth, N. J.; Florence, Ala.; Gary, Ind.; Hammond, Ind.; Indiana Harbor, Ind.; Indianhead, Md.; Lowell, Mass.; Milton, Pa.; Madison, Wis.; Mare Island, Cal.; Norfolk, Va.; New Brunswick, N. J.; New London, Conn.; Niagara Falls, N. Y.; Niles, Ohio; Newport, R. I.; Portsmouth, N. H.; Puget Sound, Wash.; Philadelphia, Pa:; Quincy, Mass.; Rock Island, Ill.; Seven Pines, Va.; Sheffield, Ala.; Sharon, Pa.; Staten Island, N. Y.; Tullytown, Pa.; Tuscumbia, Ala.; Watertown, Mass.; Watervliet, N. Y.; Warren, Ohio; Waterbury, Conn.; Woodbury, N. J."

To a remarkably successful degree the Government is now enlisting the so-called normal industrial plants to engage in the manufacture of war supplies, often to the extent of completely changing the character of the output. In many branches of manufacture, the factories have given over to Government service from 50 to 100 per cent of their capacities, and there is scarcely a city or town, that has not thus entered actively upon this patriotic service. With its limited congressional appropriations the aid, rendered by the Department of Labor, becomes neces-

sarily merely selective. One of the urgent questions of today is how a corresponding housing provision may be made for the hundreds of cities and towns, where the factories are turning out great quantities of munitions and other needed supplies.

METAL BOARD FOR ORDNANCE.

A board of metallurgical matters has been established by the Ordnance Bureau of the War Department, according to an announcement made at Washington last Tuesday. The object of this new creation is to assure the more complete co-ordination of the various ordnance departmental activities along metallurgical lines. The appointment of this board will also assure the complete co-ordination of similar activities of the different divisions of the War Department and the War Industries Board.

The personnel of the board is as follows: Dr. G. W. Sargent, Engineering Division, chairman; Lieutenant-Colonel W. P. Barba, Production Division; Major A. E. White, Inspection Division, representing the Ordnance Department; Lieutenant-Colonel F. B. Richards, of the office of the assistant secretary of war; L. L. Summers, representing the War Industries Board, and William H. Smith, representing the manufacturers.

The board will act not only for the various sections of the Ordnance Department, but also in connection with the manufacturers working for and with the department in the production of war material, and will gather the most recent and complete information on all metallurgical products.

Personal Mention

James F. Conran, general sales manager of the Standard Sanitary Mfg. Co., Pittsburgh, Pa., and C. B. Nash, manager of the publicity department of the company, were in Chicago on Thursday and Friday of this week.

Homer F. Horton.

Homer F. Horton, Chicago sales manager of the Newport Boiler Co., of Chicago, well known in the heating trade for many years, has been granted a leave of absence in order to do his "bit" in crushing the Hunnish menace. He is now in New York City awaiting orders to sail for France, where he will engage in Y. M. C. A. work at the front. Mr. Horton made special efforts to get into active service in the land or naval forces of the nation, but owing to his age he was unsuccessful. He is intensely patriotic, and being deprived of the privilege of carrying a gun, he is going over to co-operate with the man who does carry one.

A. M. Maddock, president of the Thomas Maddock's Sons Co., of Trenton, N. J., was elected treasurer of the National Federation of Building Industries at a recent meeting of the executive committee of this organization, which was recently formed for the purpose of maintaining the building industry at its highest efficiency compatible with war needs, by authorizing the preparation of a plan to be submitted to the Government.

Lieut. A. A. Crumley.

Lieutenant A. A. Crumley, a member of the long-established plumbing and heating firm of Jas. H. Crumley, 21 Elizabeth Street, West, Detroit, Mich., is now attached to the American Aviation Service in France. He is one of the survivors of the ill-fated Tuscania, which was sunk by a torpedo. Lieutenant Crumley is an ideal type of Yankee officer. His presence commands attention and respect. His friends in the trade are wishing him the best of luck in his work of fighting the Boche hordes.

OUR TRANSPORTATION PROBLEMS.

Some of our national transportation problems and difficulties can be better understood when it is remembered that in the northeastern section of the United States, including New York, Pennsylvania, adjoining states, and New England, the population is 693 persons to every mile of railroad; in the South the figures are 407 persons per mile; and in the West, 252.

There are 15 square miles of land to every mile of railroad in the West, while in the East there is one mile of railroad to every five square miles of land. There are innumerable factories in this eastern theater, and the bringing in of coal and raw material and the carrying out of manufactured products make up a tremendous freight tonnage.

The Railroad Administration is solving gradually many problems. By the elimination of many unnecssary passenger trains several thousand engines are diverted from passenger to freight traffic, which relieves the situation materially. Also by loading the freight cars to full capacity a great saving is being accomplished. Routing freight by the most direct route, and other methods adopted by the administration, are doing much to ease the strain on our transportation facilities.

Camden, N. J.—William Longheed has secured the contract for the installation of modern plumbing in the Camden Forge Co.'s new plant.

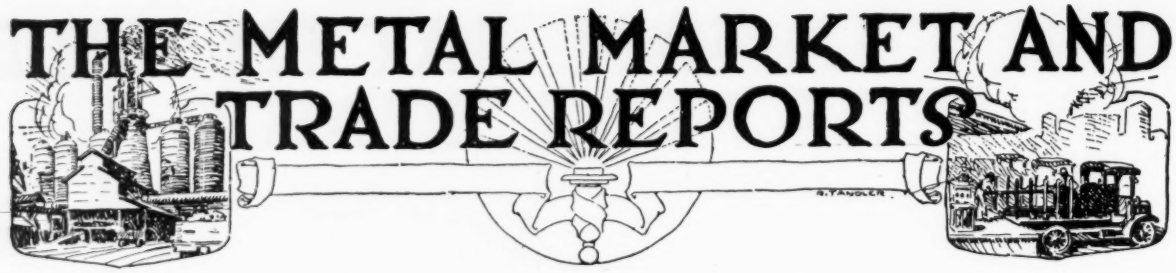
Fairbault, Minn.—P. J. Gallagher has been awarded the contract for the installation of plumbing and heating systems in the new municipal building at New Ulm.

Columbus, O.—Fitzpatrich & Hoepfner have been awarded the contract for the installation of plumbing and heating systems in the Railroad Employes Building, and in the Loan Co.'s new building on East Broad Street.

Erie, Pa.—George W. A. Butler, of 134 East Sixth Street, has secured the contract for remodeling the plumbing and heating systems in the Reed House, in this city. Mr. Butler also has the contracts for remodeling plumbing and heating systems in several residences.

Upper Sandusky, O.—Robert O'Brien, of this city, has secured the contract for the installation of modern plumbing in the South school building. The contract for the installing of a heating system in this building was awarded to the Columbus Heating & Ventilating Co., of Columbus, O.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

Steel is moving rapidly, so far as concerns production and deliveries, but distribution has been restricted to narrow limits, which seems likely to grow more narrow as time goes on, and the pressing needs of the Government for war purposes are only partly filled. Regulation of distribution is being conducted in such a way as to make the supply spread in the direction where it is needed the most. This process thins the allowance of some producers to a point, which must reduce their outturn by 40 per cent or over, from normal producing capacity. Advices from Pittsburgh report an increasing shortage of sheet bars in proportion to added demands of the Government for shell steel, but the shell discard is being sent to the wire mills to help out in reducing the loss of raw material there. Tin plate mills are working at about 93 per cent of capacity and are counted on as being able to meet the demands of the canners of food products at home and in Europe.

The total outturn of pig iron continues to fall short of requirements, although blast furnaces are working at capacity, except those out of blast temporarily because of needed repairs. As things stand at present, steel producers suffer considerably because of lack of raw material, and at the meeting of the steel and iron producers in New York last Wednesday the discussion was chiefly confined to the question of increasing the output of iron. There is no iron for sale anywhere at any price except on Government priority orders. In order to increase the output of iron the supply of coke must also be correspondingly increased, which must largely depend upon further transportation facilities. It may be necessary to aid some of the smaller producers, who claim that, if the present price is not increased, they must dispose of their fuel and turn their plants over to the Government to operate. Prices are based upon the old standard grades of No. 2 foundry at $33, and basic at $32, a ton f. o. b. furnace, and will be in operation until October 1st.

Copper.

Enough copper is being smelted and refined to meet the demands of the Government and to leave a little for commercial consumers. The needs of the latter are light, but the direct and indirect needs of the Government are extremely heavy and might overtax domestic productive capacity, if there had not been considerable falling off in copper for export. Exports last year were about 92,000,000 pounds a month, but so far this year it is about 70,000,000 a month. Estimates place production so far this year at about 200,000,000 monthly, as compared with 205,000,000 last year. The price will remain at 26 cents a pound for carload lots, and 27.30 cents a pound for smaller lots up to November 1st.

Tin.

The buyers of tin seem to have ample supplies on hand to meet their needs and can appear indifferent to the market for the time being at least. The market has been steadily falling, which causes buyers to hold off and wait for the first signs of strength to appear before they buy in quantities. The nominal price for Straits shipment is 77 cents while Banka and Chinese spot and nearby are quoted at 83 cents.

Lead.

A genuine shortage of lead exists, and the position of the metal is not likely to change for some time, but the committee has the situation well in hand and will make the supply meet the demand by unison of action. The lead committee is distributing supply in quarters, where it will do the most good, but some consumers are not getting nearly enough to meet their needs. The price is pegged at 8.05 cents New York delivery, and 7.75 cents East St. Louis.

Spelter.

The market has suddenly quieted down after a period of unusual activity, which carried the price up beyond expectations, and as demand slackened, the price receded to 9⅜ cents, New York, and 9 cents at East St. Louis.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum (in 100-pounds lots)	49 cents per lb.
Antimony, Chinese and Japanese	17 cents per lb.
Solder No. 1	58 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying.	Selling.
Copper, heavy	24 cents	25 cents
Copper, light	20 to 21 cents	23 cents
Brass, heavy	14 to 14½ cents	15¾ cents
Brass, light	12 to 12½ cents	13½ cents
Brass turnings	14 to 14¾ cents	15½ cents
Brass clippings	15½ to 16½ cents	17¼ cents
Tea lead	5¾ to 6¼ cents	7 cents
Aluminum clippings	30 to 32 cents	33 cents
Solder joints	14½ to 15 cents	16 cents
Lead, heavy	7 to 7¼ cents	7¾ cents
Cocks and faucets	18½ to 19 cents	20 cents
Mixed babbitt	8 to 8¾ cents	9½ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying.	Selling.
Heavy yellow brass	15 to 15½ cents	16½ cents
Brass, light	11 to 11½ cents	13 cents
Brass, medium	12¼ to 12¾ cents	13¾ cents
Brass clippings	15½ to 16 cents	17 cents
Red brass	21½ to 22 cents	23 cents
Cocks and faucets	17 to 18 cents	19 cents
Copper, heavy	23 to 23½ cents	24½ cents
Lead, heavy	6¾ to 7 cents	7½ cents
Tea lead	5¾ to 6 cents	6½ cents
Lead dross	4½ to 5 cents	6 cents
Solder joints	15¼ to 15¾ cents	16½ cents
Old iron pipe, per ton	$34.00	$25.00

For prosperity: Buy Fourth Liberty Loan Bonds to the limit.

The Pipe Market.

No changes have been announced in the pipe market during the last weeks.

Quotations on less than car lots of full weight steel pipe remain as follows:

	Butt Weld.		Lap Weld.	
	Blk.	Galv.	Blk.	Galv.
⅛ to ⅜ inch	38	10	....	....
½ inch	42	26	....	....
¾ to 3 inch	45	30	....	....
2 inch	....	....	38	24
2½ to 6 inch	....	....	41	27
7 to 12 inch	....	....	38	23
12 to 14 inch	....	....	28½	....
15 inch	....	....	26	....

The quotations apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong steel pipe in less than car lots, quotations are as follows:

	Extra Strong				Double Extra Strong			
	Plain Ends		Plain Ends		Plain Ends		Pl'n Ends	
	Butt Weld		Lap Weld		Butt Weld		Lap Weld	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛, ¼ and ⅜ inch	29	9	....	....	....	....	....	....
½ inch	34	14	....	....	25	5	....	....
¾ to 1½ inch	38	18	....	....	28	8	....	....
2 to 2½ inch	39	19	....	....	30	10	....	....
3 inch	39	19	....	....	....	....	....	....
2 inch	....	....	31	12	....	....	23	4
2½ to 4 inch	....	....	34	15	....	....	25	6
4½ to 6 inch	....	....	33	14	....	....	24	5
7 to 8 inch	....	....	29	10	....	....	19	List
9 to 12 inch	....	....	24	5	....	....	....	....

With threads only, the basing discount is 1 and 1½ points lower. With threads and coupling the basing discount is 3 points lower. The quotations apply to all quantities less than car lots.

Quotations on full weight genuine iron pipe, in less than car lots, are as follows:

	Butt Weld.		Lap Weld.	
	Blk.	Galv.	Blk.	Galv.
⅛ and ¼ inch	16	+13	....	....
⅜ inch	17	+12	....	....
½ inch	21	1	....	....
¾ and 1 inch	26	8	....	....
1¼ inch	26	8	11	+6
1½ inch	26	8	18	2
2 inch	....	....	19	3
2½ to 6 inch	....	....	21	6
7 to 12 inch	....	....	18	3

These quotations are f. o. b. Pittsburgh, and apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong genuine wrought iron pipe, with plain ends and in less than car lots, the quotations are as follows:

	Extra Strong				Double Extra Strong			
	Butt Weld		Lap Weld		Butt Weld		Lap Weld	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
⅛ to ⅜ inch	11	+9	....	....	....	....	....	....
½ inch	16	+4	....	....	3	+17	....	....
¾ and 1 inch	22	2	....	....	8	+12	....	....
1¼ inch	22	2	8	+12	8	+12	....	....
1½ inch	22	2	14	+6	8	+12	3	+16
2 inch	....	....	16	+4	....	....	3	+16
2½ to 4 inch	....	....	18	+2	....	....	5	+14
4½ to 6 inch	....	....	17	+3	....	....	....	....
7 to 8 inch	....	....	9	+11	....	....	....	....
9 to 12 inch	....	....	4	+16	....	....	....	....

These retail prices are f. o. b. Pittsburgh, and apply to all quantities except in car lots. With threads only, the basing discount is 1½ points lower. With threads and couplings, the basing discount is 3 points lower.

To ascertain the price in any city, deduct the proper freight rate from Pittsburgh to that city. To illustrate: ¾ to 3-inch steel pipe, black, is 45 per cent off, Pittsburgh. The freight to Chicago is 39 cents, or it would be 45 per cent minus .039, or .411 per cent Chicago for 10 cents a hundred freight you should deduct one point.

THE FRENCH STEEL INDUSTRY.

Early in the year work was stopped in a number of steel plants at St. Etienne, France, and others had to refuse orders, owing to the impossibility of getting raw material and delivering orders already executed. On the other hand, some plants in the region were obliged to stop work one day a week to economize and equalize the distribution of electric energy for all industries. The importation of American metals extensively used in this district was greatly handicapped; consequently industrial development was checked for a time, and the output of the factories disclosed a decrease compared with that of the last six months of 1916.

Toward the end of May, 1917, raw material continued difficult to obtain and was delivered to the manufacturers only on certified orders. During the latter part of the year the steel plants commenced to resume their normal activity, especially in the production of aviation motors, for which there was an increasing demand.

Some of the larger structural iron and steel works in the St. Etienne region contemplate setting up machinery and equipment for turning out tractors and other farming implements at the close of the war, which have been hitherto imported from the United States. The close of 1917 witnessed the erection of new steel furnaces and batteries of coke ovens for making by-products, such as tar, benzol, and ammoniac, the production of which, although intense, is still inadequate to supply the demand.

CHINESE IRON TRADE IMPROVES.

In the annual consular reports on trade in China for 1917 it is stated that imports of iron and steel, although improving over 1916, still fell far short of a normal year's consumption. Buying was irregular. Although America was about the only market remaining open, native dealers were slow in placing orders. When, however, the more venturesome reaped good profits from orders placed before the substantial rise in prices, buying became more general and kept up in spite of further advances and difficulties attendant upon America's entry into the war, such as embargoes, the inability of American mills to supply a full range of sizes and to make prompt deliveries, and delays en route on account of freight congestion. On account of these delays native dealers hesitated to place heavy orders, for fear the war might terminate before the receipt of their cargo.

Unmistakable evidences of the prosperity of native merchants are seen in Shanghai in the many new and handsome steel and concrete warehouses erected during the year, for the most part under the supervision of foreign architects. The net result of the year's trade is the decided improvement in the credits of all native merchants, which will undoubtedly react favorably on the further introduction and the larger purchases of American steel products.

Cleveland, O.—Kobs Bros. Plumbing Co. has been incorporated with a capital of $10,000. The incorporators are: F. M. Farnsworth and F. O. Bieder.

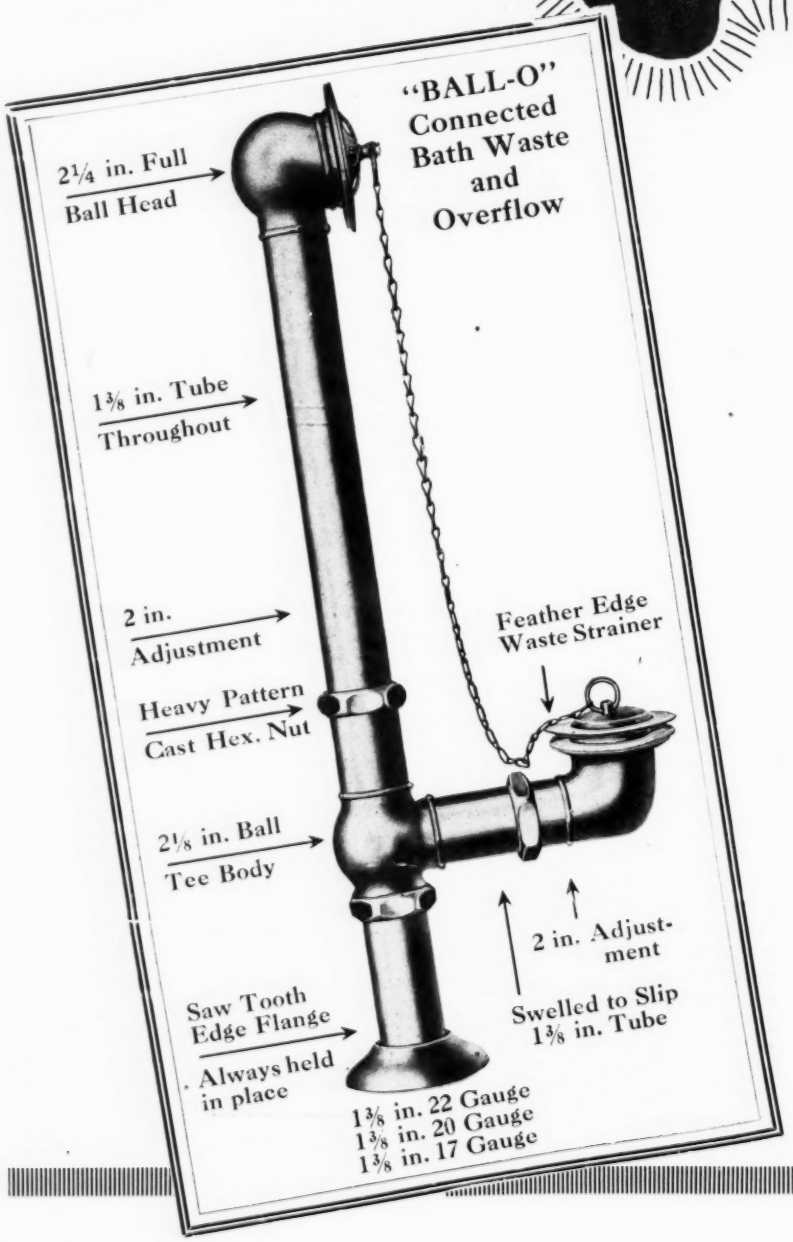
Canaan, N. H.—George E. Richardson has sold his plumbing and metal business to Daniel Campbell, of White River Junction, Vt., and has entered government service.

Prepare to put a bigger service star on your pocketbook.

- WISECO -
TRADE MARK
EST. 1877 INC. INC. 1917

"BA

Connected Bath


"BALL-O" Connected Bath Waste and Overflow
2¼ in. Full Ball Head
1⅜ in. Tube Throughout
2 in. Adjustment
Heavy Pattern Cast Hex. Nut
2⅛ in. Ball Tee Body
Saw Tooth Edge Flange
Always held in place
Feather Edge Waste Strainer
2 in. Adjustment
Swelled to Slip 1⅜ in. Tube
1⅜ in. 22 Gauge
1⅜ in. 20 Gauge
1⅜ in. 17 Gauge

FROM the viewpoint
the average b u y
there is hardly
difference between
"Ball-O" and o
waste and overfl
but the experienced and succes
merchant-plumber knows that
sanitary brass goods that come f
the plant of J. B. Wise, Inc., are
solutely beyond question in *qua*
finish and *serviceability*.
These three essentials are what bu
ing and home owners want
brass goods, especially, and co
tute what they expect to pay fo
To install a cheaper, inferior w
and overflow with the view to
increasing profits on the job is
tainly evidence of bad business j
ment. Besides the "Ball-O" ca
bought for about the same pric
the less known goods, but
"Ball-O" possesses real merit.

Write for

J.B.W
Wate

Manufacturers of

"L-O"

t Waste & Overflow

WISECO TRADE MARK EST. 1877 INC. 1912

It is built heavy and substantial, assuring the most satisfactory service. The Tee Body is full 2⅛ inches in diameter, all nuts heavy cast hexagon pattern, rigid overflow strainer, feather-edge waste strainer, saw-tooth edge flange springing on tube, thereby holding it in place, and 2-inch adjustment on overflow and waste tube. All tubes are 1⅜ inches in diameter.

The "Ball-O" is one of the fourteen distinctively different styles of the WISECO line of Wastes and Overflows.

You cannot secure a more substantial fixture, *no matter how much more you pay for it.*

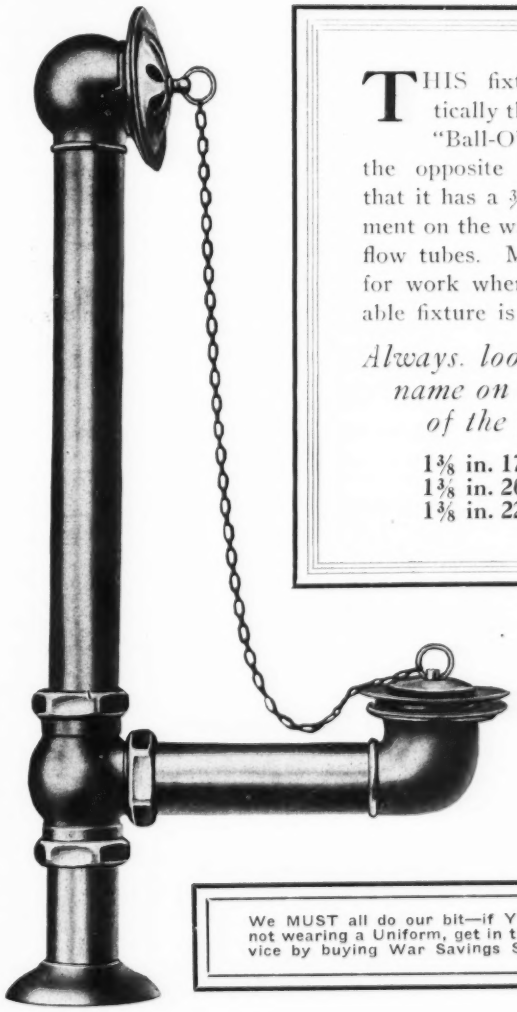
Every piece that leaves our factory is guaranteed mechanically correct and absolutely accurate as to gauge.

Order from your jobber. Be sure to specify the trade name, "BALL-O"

e t mplete Catalog

SE, Inc.
etown, N.Y.

s of rs' Sanitary Brass Goods



THIS fixture is practically the same as the "Ball-O" shown on the opposite page, except that it has a ¾-inch adjustment on the waste and overflow tubes. Many prefer it for work where the adjustable fixture is not required.

Always look for the name on the back of the fixture

1⅜ in. 17 Gauge
1⅜ in. 20 Gauge
1⅜ in. 22 Gauge

We MUST all do our bit—if YOU are not wearing a Uniform, get in the Service by buying War Savings Stamps.

W.S.S. WAR SAVINGS STAMPS ISSUED BY THE UNITED STATES GOVERNMENT

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

The C. H. Law Plumbing & Heating Co., of 88 East Harrison Street, has been awarded the contract for the installation of modern plumbing in a freight house, to be built at a cost of $50,000, at LaSalle, Ill.

S. J. Loula, 2110 South Crawford Street, has secured the contract to install plumbing systems in six residences to be erected at 4236-42 West Twentieth Street.

Mortimer & Ryan Co., of 25 East Jackson Street, will install the plumbing in a suburban station to be built at a cost of $5,000 at Sixty-third Street under elevated Illinois Central tracks.

L. W. Hudon, of 2638 West Thirty-eighth Street, has been awarded the contract for the installation of the plumbing system in a flat building to be erected at a cost of $6,500 at 4233 South Sacramento Avenue.

John Cepican, of 1913 West Fifty-first Street, has secured the contract to install the plumbing system in a store and flat building, to be constructed at a cost of $12,000, at 2524 West Fifty-ninth Street.

John Kleker, of 1707 West Forty-seventh Street, will install the plumbing in a new residence at 4441 South Washtenaw Avenue.

D. Rosenblum, of 1308 South Crawford Avenue, has secured the contract to install the plumbing in a bank, store and flat building, which is to be constructed at a cost of $25,000, at 1556-58 South St. Louis Avenue.

W. A. Bunge, of 1131 Lake Street, Oak Park, will install the plumbing in an addition to a factory at 1368 Kingsbury Street.

The Crawford Plumbing & Heating Co., of 3503 Crawford Avenue, has been awarded the contract for the installation of modern plumbing in a new bungalow at 3601 North Avers Avenue.

The American Heating & Plumbing Corporation, of 189 North Clark Street, will install the plumbing system in a rear addition to a hospital, to be erected at a cost of $75,000, at Lake View and Deming Place.

A. M. Stander, of 3939 Kedzie Avenue, has secured the contract for the installation of plumbing in a new two-story house at 3019 West Forty-first Place.

Max Greenberg, of 3614 West Chicago Avenue, has been awarded the contract to install the plumbing in a residence to be built at a cost of $4,500 at 1211 North Waller Avenue.

Other Cities in the State.

J. A. Salmon, of 224 South Genesee Street, Waukegan, has secured the contract for installing the plumbing and heating systems in a nurses' home, to be erected at a cost of $14,000, on Grand Avenue in that city.

Otto E. Witzleb, of Dixon, will install heating and plumbing systems in a public garage, which is to be built at a cost of $20,000 in that city.

The John G. Loos Plumbing & Heating Co., of Sterling, has been awarded the contract for the installation of modern plumbing in a residence, which is to be built on Second Street, between Fifth and Sixth Avenues, in that city.

California

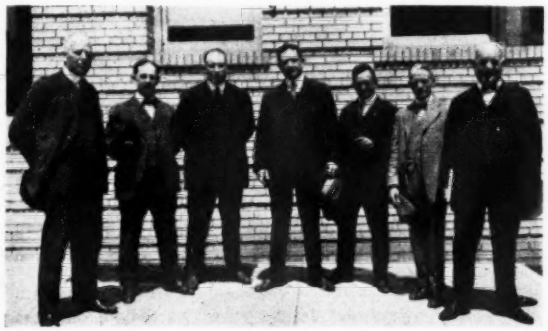
San Francisco and Vicinity.

The two elements most conspicuous in current building operations are factory additions, necessitated by war work, and housing needs for war workers. These are considerable, for there has been a great displacement of population, due to the intensive government activities. Incidental to the above there has been some work of a miscellaneous character, including schools, places of amusements and apartment houses. Various solutions of the acute housing problem now confronting the East Bay communities are undergoing a thorough investigation by the directors of the Oakland Chamber of Commerce. It is expected that immediate steps will be taken to take care of 25,000 new workers, who are coming to the bay cities within the next few months to work in the ship yards and other war industries. It is estimated that between 6,000 and 8,000 new houses will be needed. "Several solutions have been offered," said Chairman B. F. Pendleton, of the housing committee, "and many owners of the residence tracts are offering suitable sites for new dwellings. What now seems to be the most feasible plan is to form a big company which will buy land and build modest homes for the industrial workers."

Some of the Directors of the Master Plumbers' Association of San Francisco, Cal. From Left to Right They Are: W. S. La Chapelle, David Turner, Frank J. Klimm and A. J. Silva.—From "Domestic Engineering" Photo, Taken Last Week in Front of the San Francisco Master Plumbers' Hall.

F. W. Snook & Son, 596 Clay Street, have been awarded the plumbing contract on the one-story reinforced concrete addition to the fourth story of the Bankers' Investment Building, located on the north side of Market Street near Grant Avenue. The Scott Co., of 243 Minna Street, has been awarded the contract for the installation of a modern heating system.

Gilley-Schmid Co. has been awarded the contract for the installation of a low-pressure steam heating system in a three-story apartment building on Pacific Avenue and Gough Street. This company has also been awarded the contract for installing a low-pressure steam heating system in a two-story building at First and Natoma Streets.



Some of the Officers and Directors of the Master Plumbers' Association of San Francisco, Cal.—From Left to Right They Are: James H. Pinkerton, Vice-President; Alex. Coleman, President; R. J. O'Brien; A. J. Wilson, Treasurer; Wm. P. Goss, Geo. Guthrie, and F. W. Snook.—From "Domestic Engineering" Photo, Taken Last Week in Front of the San Francisco Master Plumbers' Hall.

Other Cities in the State.

Plans are being formulated for the establishment of an Alameda County hospital, at a cost of $200,000, at Berkeley, to be utilized later to care for invalid soldiers and sailors. At a recent election a $1,000,000 bond issue for the establishment of a new institution was voted down by the people; but a few days ago the present plan was approved by the board of supervisors. The probable location for the new building will be on the California College site, recently bought by the county.

A new one-story reinforced concrete grammar school is to be erected at Rio Vista, at a cost of $29,680. The heating contract has been awarded to J. C. Hurley, of San Francisco, at $3,925.

L. F. Wolfe, formerly superintendent of the Pacific Porcelain Ware Co.'s plants in Richmond, showed up among his old friends this week in the uniform of the United States Navy. Mr. Wolfe, who enlisted in the navy early in the war and received his training at San Diego, is now fireman on a submarine patrol on the East Coast. He was here on a short furlough.

Work is to begin shortly on Clyde, the new town to be built on Suisun Bay, to house the army of workers now reporting at the big plant of the Pacific Coast Shipbuilding Co. Grading is under way, preparatory to building and to the laying of water, gas and electric mains. A $75,000 hotel and a large number of small residences are to be erected at once.

Plans have been drawn for a new combination hotel and apartment house to be erected at Woodland, at a cost of about $100,000. The building will be three stories in height and will contain about eighty-six rooms and apartments. Modern plumbing, heating and lighting will be installed.

Missouri

St. Louis and Vicinity.

A movement which started a few weeks ago and for a time assumed threatening proportions, has to all appearances died a natural death. The movement referred to was to the action of some master plumbers deserting the ranks of the contractors and casting their lot with the journeymen. A few St. Louis master plumbers, lured on by the lucrative life of a journeyman these days, closed up their shops and took out their union cards. During the past week, however, it was not possible to find a single case, despite the fact that several men had been considered on the verge of taking the leap. The high cost of employing men and the practical impossibility of doing any accurate figuring on a piece of work, because of conditions, are the two reasons assigned for the move, by men who are conversant with the situation.

The biggest point of discussion among the plumbers, heating and power men is the effect of the new draft legislation, increasing the ages from 18 to 45, upon the two industries. It is the consensus of opinion among the better informed men of these two crafts that the effect of the new legislation will not be near as drastic as it would be, if the plumber and heating men would be able to handle all the work that they have on hand. As it is, according to one member of the St. Louis Master Plumbers' Association, the new law is merely another move that will have the same tendency as the high cost of labor and material, the government restrictions on building, etc. He thinks that it will bring home to people more forcibly than ever the idea that all big investments and improvements must be postponed until the end of the war.

Joseph Sheehan, son of Thomas J. Sheehan, of the T. J. Sheehan Plumbing Co., Fifteenth and Olive Streets, has joined the United States Marine Corps and has written his father that the life at Paris Isle, S. C., is "the real stuff." Young Sheehan is a former student of St. Louis University and St. Mary's College, Kansas, and for a time was connected with the clerical force at his father's office.

In the assembly room of the St. Louis Master Plumbers' Association's headquarters there is hanging the association's service flag. Secretary Blake, of the association, says: "At last reports there were seven master plumbers in the service of the country. It is thought that as a result of the new draft legislation there will be many more red stars in the white field."

M. P. McDonnell Plumbing Co., 1202 Goodfellow Avenue, has been awarded the contract to install 212 plumbing fixtures in the old LaSalle Hotel.

Tennessee

Memphis and Vicinity.

It is reported that the Lotus Building, Jefferson Avenue, Memphis, may be utilized by the government as a hospital and the neighboring business property used as offices in connection with it. This is quite a large and sanitary structure and is splendidly located for such a purpose, being central and yet outside the noisy section.

James L. Evans, a well-known Memphis plumber, has offered his services to the Y. M. C. A. and if accepted, may go to France.

James Lowe, of this city, has opened a branch office of his plumbing and heating business at Helena, Ark.

NEW BUSINESS

from Old

Heating Systems

Show your customers how you can convert their coal-burning systems into combination coal and gas plants, at little expense, by installing

The FRANKLIN

Quick Removable

GAS SYSTEM

Can be changed from gas to coal in a minute's time without tools.

The FRANKLIN burns less gas and gives more heat.

A source of good profit for you. Now is the time to get busy with the FRANKLIN.

Write today for more details.

The Franklin
Plumbing & Heating Co.
Carthage and Mitchell Avenues
CINCINNATI, OHIO

BRINGING

ARMSTRONG TOOLS

TO YOU

THIS Pipe Cutter is not only the strongest and most rapid working, but it is the cheapest, by reason of its taking a larger range of pipe than any pipe cutter known.

CATALOG SENT UPON REQUEST

Model A Quick Acting

THE ARMSTRONG MFG. CO.

284 Knowlton Street Bridgeport, Conn.

Indiana

The work of installing a heating and ventilating system in the high school building, at Medora, has been completed by J. J. Barnhart, of that town.

William Zimmerman, of 329 Olive Street, Whiting, has the plumbing and heating contract on a new $25,000 dairy building to be erected in East Chicago. Mr. Zimmerman will also install modern plumbing in the new $20,000 store and apartment building, which is to be erected at Whiting, for John Mant.

The Columbus Machine Co., of Columbus, has received the contract for the installation of a heating and ventilating system, as well as the installation of modern plumbing, in the new $100,000 shirt factory that is to be erected at Bedford, for the Reliance Manufacturing Co.

Joseph Voto, of Clinton, has received the heating contract on the new $18,000 school building that is being erected at Lyford.

The contracts for the installation of the plumbing and heating systems in the jail and court house at Newcastle, were let by the county commissioners this week. The plumbing and heating contract on the jail was awarded to the Newcastle Plumbing Co., of Newcastle, and similar contracts for the court house were awarded to the Stanley Plumbing & Electric Co., of 910 Main Street, Richmond.

The Prox & Burgett Co., of Terre Haute, was the successful bidder for the installation of plumbing and heating in the school building at Cory, which is being rebuilt following a fire.

The Hipskind Heating & Plumbing Co., of Wabash, has been awarded the contract for the installation of the plumbing and heating in the new Clinton County Infirmary, which is to be erected at Frankfort.

H. E. Thompson, of Fort Wayne, was the successful bidder for the plumbing, heating and ventilating contracts on the new $10,000 flat building that is to be erected at DeKalb, Ill., for Strauss Bros., of Ligonier.

James Foley, of Rushville, has secured the plumbing and heating contracts on the new residence that is being erected at Rushville, for A. L. Gary.

The contract for the installation of the plumbing and heating in the new $9,000 bank building that is to be erected for the State Bank of Kimmell, at Kimmell, has been awarded to John Kunkleman, of Ligonier.

Max Schmidt, of 702 Hohman Avenue, Hammond, has received the plumbing contract on the new residence that is to be erected for F. W. Watner, in that city. Mr. Schmidt also has the plumbing contract on C. N. Abbott's residence at Truman and Eaton Streets.

The heating contract on the new $50,000 apartment building that is to be erected at Waltham Street and Park Place, Hammond, has been awarded to J. H. McGuire, of that city.

S. C. Durbin, of Fifteenth and Cullerton Streets, New Albany, was the successful bidder for the plumbing contract on the new church building that is to be erected on Vincennes Street for the De Pawn Memorial M. E. church.

E. Pripps, of 626 Washington Street, Gary, has received the contract to install the plumbing and heating systems in the new $50,000 apartment building that is to be erected at 458 Polk Street for Walter Welter. The building will contain twenty-six modern apartments.

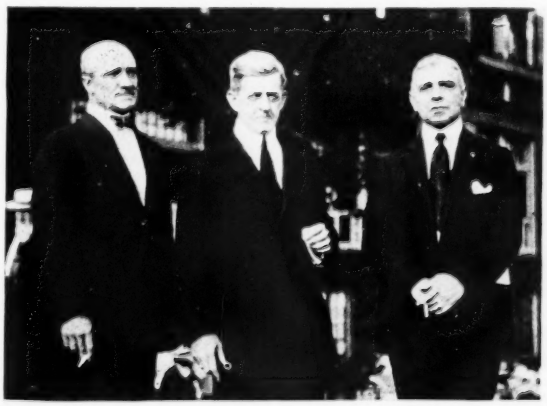
The Meerson Plumbing Co., of Gary, has received the contract for the installation of the plumbing in six new flat buildings being erected in that city, for M. R. Revesz.

New York

New York City and Vicinity.

The New York City Association of Master Plumbers is completing elaborate plans for the coming Fourth Liberty Loan campaign. Committees have been appointed for detailed canvassing in the various branch associations, numbering forty-three in all, headed by J. H. Jasper, president of the Manhattan branch, as chairman. The trade will be thoroughly canvassed, both by mail and personal solicitation, with the aid of a card-recording system, covering each plumbing establishment with its heads and employes, so that no possible prospect will be overlooked. Already these cards have been headed and are now in process of being filled with the necessary data, so that when the campaign opens the committee will be in position to take immediate action. Later on special Liberty Loan meetings in the several branches will be held to further the work of the committee. Provision is made for installment payment of bonds, permitting the purchase of bonds on easy and convenient terms, and it is the purpose of the association to make a record for the plumbing section of the Fourth Liberty Loan Rainbow Division. The committee, any member of which will accept subscriptions to the loan, to be credited to the Plumbing Trade Section, follows:

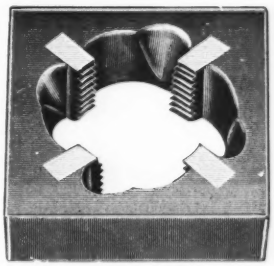
Armstrong, James, 219 East Thirty-eighth Street.
Auskulat, Herman, 1154 Third Avenue.
Blair, John P., 349 Park Avenue.
Brown, I. J., 100 West Eightieth Street.
Chandler, Alfred E., 863 Sixth Avenue.
Conklin, Wm. J., 164th West Twenty-ninth Street.
Cummins, T. J., 1035 Third Avenue.
Davis, Andrew J., 581 Columbus Avenue.
Deigan, David, 126 West 100th Street.
De Voe, H. B., 109 West Eighty-third Street.
Duffy, Vincent J., 315 East Twenty-third Street.
Eich, Philip, 1412 Second Avenue.
Fee, Frank J., 292 Avenue B.
Furey, Thomas J., 420 East Seventeenth Street.
Gibson, George E., 103 Park Avenue.
Gunn, John D., 528 West 145th Street.
Hansen, August, 168 Lexington Avenue.
Hemlin, Harry, 144 West Ninety-ninth Street.
Jarcho, Morris, 22 East 105th Street.



John R. Hopkin, Frank B. Lasette and Philip Weinselmer, all of New York City.—From "Domestic Engineering" Photo, Taken at the St. Louis Convention of the National Association of Master Plumbers.

"CROWN"

"Easy Cutting" Pipe Dies



"CROWN DIES" are "SCIENTIFICALLY MANUFACTURED." The teeth are "MILLED" not merely tapped as the ordinary Die. This is why "CROWN DIES" are the "EASIEST CUTTING" Dies on the market. They are the "BEST" Dies made and in the long run the "BEST" are the "CHEAPEST." Therefore, when ordering dies specify and insist on "CROWN DIES."

Your jobber has them or can get them for you.

Write for our catalogue.

Manufactured by the

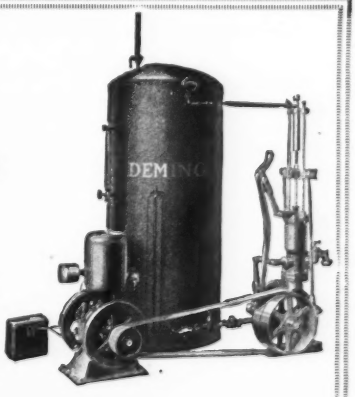
CROWN DIE & TOOL CO.

555 W. Monroe St. CHICAGO

Mfrs. of "Crown" Pipe Cutters, Chain Post Pipe Vises, Stocks, Etc.

For Wells 300 feet Deep

System No. 2020 insures a plentiful supply of water from wells up to 300 feet deep. Should the engine power fail, hand operation is possible.



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The Deming Company, Salem, Ohio

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Henlon & Hubbell, Chicago. Harris Pump & Supply Co., Pittsburgh.
Root, Neal & Co., Buffalo, N. Y. Ralph B. Carter Co., New York City.

UNITED LEAD TIN BRASS LINED PIPE

Longest-lived, most economical pipe made. Also "United" acid-proof pipe and fittings.

UNITED LINED TUBE & VALVE CO.
186 Franklin Street BOSTON, MASS.

THE SIGN OF GOOD FLASHINGS

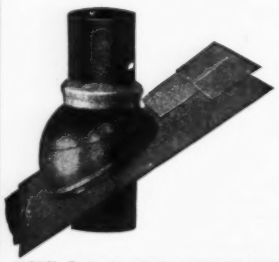
We are the only concern in the country making a complete line of Adjustable Roof Flashings in Galvanized Iron, Copper or All-Lead.

Simplex Flashings are the best that HONEST CONSTRUCTION, SUPERIOR MATERIALS and EXPERT WORKMANSHIP can produce.

Ask your jobber.

Simplex Mfg. Company 313 So. Clinton St., Chicago, Ill.

NO ROOF IS SUPERIOR TO ITS FLANGE



Therefore, some PLUMBER is the father of every leaky roof.

The Bullard Roof Flange

is acknowledged as the only PERFECT FLANGE by busy men who have made satisfying installations.

THE BULLARD SPECIALTY COMPANY, Tiffin, O.

Use Only the
ORIGINAL
Double Drainage Drains

The Standard of America

Look for "JOSAM" on Every Drain

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EASTERN BRANCH: 7 W. 45th St., NEW YORK
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Jasper, J. H., chairman, 108 East 126th Street.
Knight, John L., 136 West Fiftieth Street.
Lasette, Frank B., 238 West 108th Street.
Lauria, Pasqual, 244 Mott Street.
Lawrence, Wm., 561 Hudson Street.
McCaul, Thomas F., 203 West Eighty-second Street.
McLoughlin, Thomas P., 20 East Sixty-ninth Street.
Murphy, Jere L., 238 West 108th Street.
O'Neill, John C., 3200 Broadway.
Reiff, John, 259 William Street.
Renehan, John, 249 Lexington Avenue.
Rittenhouse, Virgil S., 240 East Fifty-ninth Street.
Taylor, Hugh M., 118 Broad Street.
Vineburg, Benjamin J., 310 East Sixty-ninth Street.
Young, William, 217 West Thirteenth Street.
All in Manhattan.
Beyrodt, Alfred, 7759 Hewett Place, Bronx.
Dixon, J. J., 29 Atlantic Avenue, Brooklyn.
Elliott, Jos. F., 1271 New York Avenue, Rosebank, S. I.
Flynn, Hon. William J., 11 East 167th Street, Bronx.
Frisse, Louis, 669 Bushwick Avenue, Brooklyn.
Kennedy, M. J., 283 Livingston Street, Brooklyn.
Rogers, John F., 131 Main Street, Flushing, L. I.
Theiss, Joseph, 584 East 169th Street, Bronx.
Welch, Stephen H., 1874 Washington Avenue, Bronx.

Executive Clerk Alex. Brown, of the Manhattan branch of the New York City Association of Master Plumbers, returned last week from a two weeks' sojourn with his family at Ashbury Park, N. J., prepared for a vigorous fall campaign. In commenting on the new and modern office equipment recently installed at executive headquarters, Mr. Brown, said: "It represents about an even hundred per cent increased efficiency in the work of the office and increased service to the membership." Among items of special interest in the new equipment are a new improved filing system and a rapid addressing machine. These coupled with the various other modern office devices installed and the addition to the office staff of Mr. Brown's secretary relieve Mr. Brown of much of the detail office work and permit a greater amount of useful field activity. The work of compiling the list for the association's service flag is under way. It will undoubtedly be a large affair.

Lieutenant John B. Flood, brother of George W. Flood, a master plumber of East Sixty-second Street, New York, has been decorated with the Croix de Guerre of France and the American Army Distinguished Service medal for bravery on the battle field at the Western Front. Lieutenant Flood, who is a graduate from Plattsburg Officers' Training Camp, is now in the hospital, having sustained injuries in the recent fighting, which necessitated the amputation of one foot above the ankle. He writes that he will be supplied with an artificial foot, which will permit him to walk about as before.

A. H. Karl, of 448 East Third Street, Mt. Vernon, is not complaining about the scarcity of work these days. Some of the work, upon which his mechanics are now engaged or about to start, consists of the plumbing and heating in the new Temple of Manuel Synagogue on Prospect Street, similar work in three new residences at Oakwood Heights, ten new residences on Sixth Avenue, one on Bedford Avenue, one on Garden Avenue and another at Pelham Manor.

Architects Carrere & Hastings, 52 Vanderbilt Avenue, New York City, have prepared plans for the construction of a proposed convention hall for the city of Baltimore, Md., to cost in the neighborhood of $800,000.

Connecticut

Farren & Garrity, of New Haven, will do the plumbing and heating in a new house on Forest Street, Allingtown, for Joseph Kracz.

John F. McNamara, of 233 Atlantic Street, Stamford, is installing the plumbing and heating in the new addition to the public school at Springdale, Conn.

Leo Setlow, of 244 Congress Street, New Haven, has secured the contracts for the installation of plumbing and heating systems in five two-flat buildings in New Haven and in a residence at Morris Cove.

C. W. Carlson, of Bridgeport, has the contract for installing plumbing and heating in a two-family house on Beechwood Avenue for the Swedish Methodist Church. He also has a contract for plumbing and heating in a residence on Elmwood Place, Bridgeport, for H. L. Blackman.

Maine

Chapman J. Smith has resigned as inspector of plumbing for the city of Portland, and his resignation has been accepted by the board of health. The position is expected to be filled at an early date. It is understood Mr. Smith has another position in view.

C. H. Babb & Co., of Bangor, have the contract for installation of a new heating system in the Caribou National Bank building at Caribou, Me.

A new heating plant costing approximately $10,000, is to be installed in the state prison at Thomaston.

The Peoples' Hardware & Plumbing Co., a $50,000 corporation, which proposes to do plumbing and steamfitting and deal in hardware, furniture, etc., has been organized at Bethel. Zelia Blias is president, Joseph G. Blias, treasurer, and A. E. Herrick, secretary.

Rhode Island

Bids have been received this week at Bristol for installing a new heating system in the Burton School on East High Street, Bristol. There were several bidders.

William Richardson, Jr., of 176 Terrace Avenue, Providence, has the contract for plumbing, and C. Woods, also of Providence, the contract for heating a residence being erected on Armington Street in that city, for Lester C. Wales.

Among contemplated school improvements at Cranston is the installation of modern sanitary systems in the Howard school. The school board has felt the need for the improvements for some time and is urging the city government to make the necessary appropriation.

Gallagher Bros., of 464 Prairie Avenue, Providence, have the contract for plumbing and heating in connection with the altering of a building on Black Island, to be used as a recreation building by the Knights of Columbus for soldiers and sailors on the island.

William Richardson, Jr., of 176 Terrace Avenue, Providence, will install plumbing in a two-family house being erected on Pawtucket Avenue for Irving H. Lockwood.

Alfred C. A. Robinson, of Providence, has the contract for plumbing, and the Haslam Heating & Ventilation Co. the heating in a house being erected for William Carr on Park Avenue, Providence.

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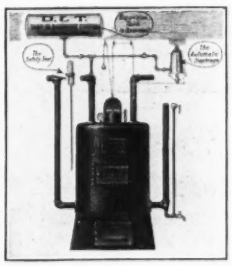

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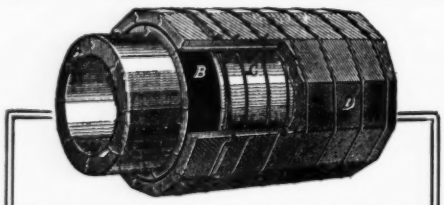

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The South Providence Plumbing Co., of 829 Broad Street, has secured the contract for plumbing in a house at Boyden Heights, Providence, for William Grinnell.

David Hindle, of 197 Cranston Street, Providence, has been awarded the plumbing and heating contracts in connection with alterations being made in the B. W. Goldowsky house on Baker Road.

The Blackstone Steam Heating Co., of Timothy Street, Pawtucket, has been awarded the contract for plumbing in two four-apartment houses being erected on Lowden Street by Lewis Monast.

New Hampshire

John J. Lycette, of Nashua, has secured the contract for remodeling the plumbing in the McElwain Co.'s shoe factory in that city.

Geo. E. Marston, of Manchester, is installing plumbing and heating systems in ten cottages at Hampden Beach. He also has the contract for remodeling the plumbing in the Elliott Hospital at Manchester.

Vermont

The N. D. Phelps Co., of Barre, has secured the contract for remodeling the heating system in the Heaton Hospital at Montpelier. The contract amounts to $6,000.

The G. S. Blodgett Co., of Burlington, has been awarded a contract to install the plumbing in the new public convenience station to be opened in the Stannard Memorial Building in that city. The work of tearing away the floors and partitions, where the station is to be located, has already been started.

Massachusetts

The Quincy Board of Health has taken steps looking toward the establishment of a public convenience station in the Hough's Neck section of the city, near the Quincy Yacht Club House. The matter has been brought to the attention of the city council and is said to be meeting with favor. Residents in the Hough's Neck district long have felt the need of a convenience station, for it is a popular summer resort with many transient visitors.

Robert E. Pray, Charles F. Peck and John S. Kennedy have been named as a committee to prepare a set of plumbing regulations for the town of Greenfield, in accordance with a vote passed at a recent town meeting. Regulations in effect in the nearby town of Longmeadow were considered at the meeting, but the voters felt that it was better to have a special committee prepare rules especially adapted to Grenfield, and as a result Moderator Frank J. Lawler has made the above appointments. The committee will devote much time to the subject, making their report at the next annual town meeting in the winter. Mr. Peck is a practical plumber.

P. B. Connolly, of Brockton, has been awarded the contract for the installation of a new heating system in the Goddard school in that city, being the lowest of several bidders.

The Chelsea city government has appropriated $3,000 for new plumbing work in the Williams school in that city. In a communication to the aldermen, Mayor Willard pointed out that defects in the plumbing were resulting in a large wastage of water and consequent serious expense to the city

President Daniel E. Carroll, of the Massachusetts Association of Master Plumbers, accompanied by State Treasurer J. Preston Perham, of the Isaac Riley Co., of Boston, and T. E. Costello, and C. H. Hobson, both of Lowell, started on a motor tour from Lowell on Sunday, August 17th, visiting local associations in the western part of the state. The trip was an interesting one and was concluded on Wednesday, August 20th, when the party attended the annual outing of the Massachusetts Association of Master Plumbers at Point Breeze, Webster. The members of the different locals accorded President Carroll a rousing welcome. Associations in the following cities were visited: Greenfield, North Adams, Pittsfield and Springfield.

Herbert E. Riley and Charles S. Riley, of Northampton, have succeeded to the plumbing business conducted in that city for many years by their father, the late William H. Riley, under the firm name of W. H. Riley & Co. The elder Riley's will, recently probated, bequeathed the sons the business as well as much other valuable property in Northampton. Herbert had been manager of the store and retail department of the business for a number of years, and Charles had been manager of the heating and plumbing departments. Announcement has been made that the business will be continued under the name and policy as established by the father.

Secretary Oswald J. Cullington, of Lawrence, has sent each member of the New England Association of Plumbing Inspectors word of the decision of Chairman Andrew J. Burnett and other members of the Ways and Means Committee, not to hold the usual midsummer meeting for patriotic reasons. "Our country is engaged in war, which will tax its resources heavily," Mr. Cullington writes, "and thousands of her sons have made and hundreds of thousands stand ready to make the supreme sacrifice to uphold her traditions. Conservation in every essential is absolutely necessary, consequently we should willingly subordinate our desires for transient enjoyment to the greater need. Perhaps the cancellation of our outing may not mean a great deal in the general scheme, but it is a step in the right direction, and it is our duty to set the pace in this matter, as we have as an association in matters pertaining to sanitary science."

Oregon

Portland and Vicinity.

The city council of Portland recently passed an ordinance providing for legislation authorizing a housing survey for the purpose of collecting data relative to the lack of housing facilities in Portland, to be submitted to federal

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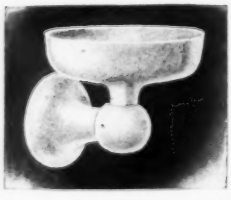

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officials, together with a request for Governmental aid in building houses. An appropriation of $5,000 was made to cover the expense of the survey. A committee composed of H. E. Plummer, city building inspector; E. F. Lawrence, of the Oregon Chapter of American Institute of Architects, and E. W. Sleeman, was appointed to formulate plans for the method of making the survey, and to appoint an expert to do the work required. It is stated that the present lack of housing facilities is driving expert workmen away from the city and embarrassing the ship building industry in Portland. It is conservatively estimated that 2,000 additional homes are needed to accommodate the industrial workers in Portland.

J. A. Allen, North Bend, plans the construction of two modern apartment houses in that city, each to contain four large apartments.

Simpson Estate Co., North Bend, is having plans prepared for the erection of twenty-five bungalows.

Iowa

Carsten Bros., of Ackley, have recently been awarded the contract for the installation of plumbing and heating systems in a high school, to be erected at a cost of $100,000, at Osceola.

J. M. Davidson, of Newton, will install plumbing and heating systems in a store, apartment and office building to be erected, at a cost of $20,000, at Benton.

Thomas Rinehart, of Le Mars, has secured the contract to install heating and plumbing systems in a residence to be built, at a cost of $10,000, at Sioux City.

A Corner in the Display Room of Wilson Plumbing Co., at 412 West Seventh Street, Sioux City, Iowa.

Kentucky

Gray & Tomppert, of Louisville, recently secured the contract for the installation of the plumbing in the new Church building, being erected by the First Church of Christian Scientists.

The Henderson Plumbing Co., of Henderson, has the contract for the plumbing in Heinz Co.'s new building. It also has the contract for the heating in the Catholic Church and the plumbing in a new residence at Morgantown.

Ernest Watts, of Madisonville, will install the plumbing and hot water heating systems in W. D. Coil's residence.

The city of Falmouth was without water for two days, due to the fact that the pump at the power house gave away. According to the Falmouth paper, the pump is in a bad condition and the city will be forced to install a new one in the near future.

Ohio

Cincinnati and Vicinity.

J. A. Klausen, of this city, has contracts on his books for the installation of plumbing in several residences and apartment houses in Norwood.

Wm. H. Wiekl is remodeling the plumbing in a number of residences.

C. J. Blentlinger, of 3541 Handman Avenue, has been awarded the contract for the installation of plumbing in three new residences and in the new annex to Pfau Mfg. Co.'s plant.

Wm. A. Botley, of 3546 Eastern Avenue, recently secured the contracts for the installation of plumbing in the residences of W. D. Sigel, A. Mather and W. Tasker, and in the Cincinnati Ball Crank Co.'s new plant.

George Young, Jr., of 1827 Race Street, is remodeling the plumbing in the Standard Laundry Building, the Carew Building, six residences and in two large apartment houses.

The Richard Murphy Plumbing Co., of 328 Fourth Avenue, East, has secured the contracts for the installation of plumbing in the Palace Amusement Building, the Good Samaritan Hospital and St. Andrew's Church.

The Western Plumbing Co., of 1715 Elm Street, has contracts on its books for remodeling the plumbing in a number of city and country residences.

S. Horvitz & Co., of 902 Vine Street, recently installed modern plumbing in seven residences and in twenty-eight apartments.

Pennsylvania

Pittsburgh and Vicinity.

For patriotic reasons, Tarentum borough has ordered that the completion of a new $20,000 sewerage system, including a disposal plant, be postponed until after the war. With all lines laid, and the system ready for use, it was decided not to install the electrical equipment required for pumps, because it was believed that the Government was in greater need of the motors and other machinery than the borough. The lines are to be sealed until after the war, when it is expected that the plant will be placed in operation. It has been under construction for three years.

An edict has been issued by the state department of health to the council at Beaver Falls, near this city, making it mandatory upon the council to construct a huge outlet sewer from the present disposal plant to a point below the Tenth Street dam. On account of the condition of the disposal plant, for some weeks, great damage has been done, it is reported, to water and drainage systems in the district. New lines have had to be laid for private use, and residents are boiling all the water used for drinking purposes. Plumbers report a tremendous demand for their services and supplies as a result of present conditions.

Richard Weldon, a son of Joseph A. Weldon, of the Weldon & Kelly Co., 427 Fourth Avenue, who entered the aviation section of the United States Army recently, has completed his course of preliminary training at the Schenley Park here and is now at the Langley field prior to sailing for France.

William Keane, a son of John H. Keane, secretary of the Master Plumbers' Association, is now a member of the

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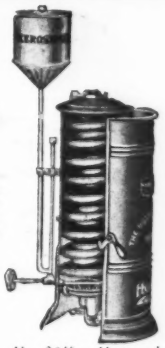

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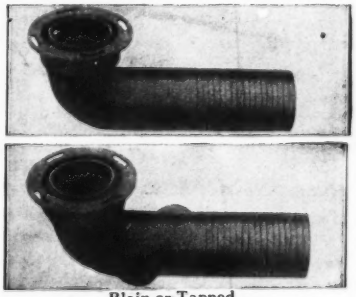

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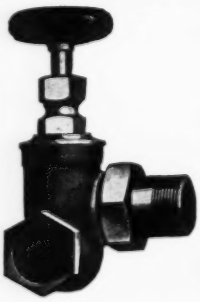

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medical reserve corps, United States Army, having volunteered his services a short time ago. Mr. Keane is stationed at Columbus Barracks, Ohio, but expects soon to sail for France.

Stone & Webster have the contract for 100 houses at Duquesne, to be erected for the Carnegie Steel Co. The same firm also has the contract for 100 houses at East Pittsburgh.

A contract to build thirty-five modern four and six-room houses on a 10-acre plot of ground near Homestead Park, Homestead, recently purchased for the purpose by the Carnegie Steel Co., has been given to the Nicola Construction Co., of Pittsburgh. The houses are being built to provide quarters for employes of the company. It is planned to erect at least seventy other houses of the same kind during the present year.

Wilkes-Barre and Vicinity.

Plans were filed with the building inspector during the week for a $200,000 addition to the Sheldon Axle Co.'s plant in North Wilkes-Barre, the building to be two stories and of steel and concrete, 126 by 269 feet. The filing of the plans by the Sheldon Axle Co. means that Wilkes-Barre will remain among the leading cities of the state in point of building operations during the summer months. Wilkes-Barre has been the scene of much building, despite the effects of the war, and each month has seen it well up at the top of the list. The new Market House project and the additions being built by the Hazard Mfg. Co.'s plant have been material factors in upholding this record.

Allen & Fell, of Hazel Street, Wilkes-Barre, will remodel the heating system in the Boston Store, the city's largest department store, and remodel the plumbing and heating systems in the Wolfe residence on River Street.

Philadelphia and Vicinity.

Bulman Bros., of 2532 Fifth Street, have been awarded the contract for the installation of plumbing in the new box shop at the Frankford Arsenal, and in the new ordnance department school, being erected at the corner of Twelfth and Brandywine Streets, for the United States Government.

Irwin English, of 636 North Eigtheenth Street, has been awarded the contract to install plumbing in the new apartment house being erected by G. Goldfarb, at 1202 East Chelten Avenue.

Mervine Bros., of 217 South Eighth Street, have been awarded the contract for the installation of plumbing in the Unit Construction Co.'s new building at Fifty-seventh Street and Grays Ferry Road. F. C. Bowers, of 1826 Willard Street, has the heating contract on this building.

Walters, Purks & Mellon, of 4417 Ludlow Street, have been awarded the contract for plumbing in the new cafeteria being erected at Eddystone for the Baldwin Locomotive Works. The contract amounts to $8,000.

W. A. Peters, of Twenty-ninth Street and Lehigh Avenue, will install the plumbing in Elisha Webb & Son Co.'s new shop being erected at 1021 East Columbia Avenue.

The J. Sellers Pennock Estate, of 33 North Seventh Street, has been awarded the contract for the installation of plumbing and heating systems in the new store and office building that is being erected at Pier 27, Delaware and Noble Streets, for the Navy Department of the United States Government.

B. Magill, of Norwood, has been awarded the contract for the installation of plumbing and heating systems in two new residences being erected by B. R. Parker, at Prospect Park.

W. G. Cornell & Co., of 1237 Market Street, have been

awarded the contract for the installation of plumbing in the new department store to be erected at the corner of Eleventh and Commerce Streets, for Frank & Seder Co.

M. W. Frey, of 7700 Ridge Avenue, has been awarded the contract for remodeling the plumbing in F. Wasserman's residence at 1412 North Sixteenth Street.

Park Bros., of 5844 Montrose Street, will install the plumbing, and E. R. Sabin & Co., the heating systems in 42 residences being erected on Nassau Street, between Sixty-first and Sixty-second Streets.

Wm. Anderson, of this city, has been awarded the contract for the installation of plumbing in the Pennsylvania Railroad Co.'s new moulding plant which is being erected in Morrisville.

Raisler Heating Co., of New York City, has been awarded the contract to install heating in the new government building at the Philadelphia Navy Yard.

Walters, Purks & Mellon, of 4417 Ludlow Street, have been awarded the contracts for installing plumbing and heating in 486 houses being erected by MacArthur Bros., at Chester.

J. Frank Boyer, of Norristown, has been awarded the plumbing contract, and the Philadelphia Steam Heating Co., the heating contract for the McKean Street Pier, now being constructed by the city.

Washington

Seattle and Vicinity.

Perhaps the greatest forward step yet taken in the solving of Seattle's housing problem was the recent announcement by six of the city's oldest and most prominent real estate and rental firms of their combination into a company, to be known as the Seattle War Housing Corporation, which will build homes on a scale without precedent in the city. The firms in the deal are West & Wheeler, Henry Broderick, Inc., John Davis & Co., Henry C. Ewing Co., Carter, MacDonald & Vincent C. Miller, Inc., and E. S. Goodwin & Co. Papers of incorporation, in course of preparation, place the capital stock at $250,000. Profits of stockholders will be limited to 10 per cent. No salaries of any kind will be paid, and the six companies will subscribe heavily for the company's stock. Immediate action is planned. Lots will be bought in the open market, and houses built in various parts of the city. The houses will not be built to rent, but to sell. It is expected that about 250 houses will be undertaken as an initial step, but the corporation plans to build between 1,000 and 2,000 homes in less than a year. The movement will be carried on in co-operation with the More Homes Campaign, being conducted by the Seattle Chamber of Commerce and Commercial Club.

The More Homes Campaign is meeting with gratifying results, and members of the Chamber of Commerce report that the construction of new homes is being started in large numbers almost daily. The chamber is endeavoring in every possible way to assist the home builder in the preparation of plans and in financing the work.

One of the largest individual ventures recently undertaken was the purchase, by Monte Hicks and Oscar P. Dix, of a block of property on Queen Anne Hill, containing 41 lots. Thirty-five separate houses will be constructed immediately on this property, the houses to cost from $2,000 to $3,000 each. The investment of the company will amount to $100,000. It is confidently predicted that before the end of September, at last 2,000 additional homes will be under construction throughout the city.

PORTABLE SHOWERS
SPECIAL PRICES IN DOZEN LOTS
SHOWERS OF ALL DESCRIPTIONS
GOETZ BRASS COMPANY
630 N. FRANKLIN ST. CHICAGO, ILLINOIS

ALLEN FLUX
Makes a joint stronger than the metal sodered and a shade less than *three times* as strong as where muriatic acid flux is used.
Sample Free
L. B. ALLEN CO., Inc.
4526 N. Lincoln St., Chicago
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A Quiet Pump in Your Home
You can keep Pump noise out of your home by keeping out the kind of a Pump that makes a noise.
The Geo. J. Roberts Co.
Dayton, Ohio, U. S. A.

"Femco" Fittings
Goods that make good *Quality first, last and always*
We make a complete line of Plumbers' Brass Supplies for all requirements. Write for prices.
Frost Manufacturing Co. Kenosha, Wis.

ELECTRIC HOUSE PUMPS Dayton WATER SUPPLY SYSTEMS
Suction Pumps *and* Complete Water Supply Systems
pumping capacities 120 to 1,000 gallons per hour. Efficient Deep Well Pumps with Hyatt Roller Bearings and silent chain drive, pumping capacities 150 to 2,000 gallons per hour. Write for bulletins and price sheets.
The Dayton Pump & Manufacturing Co.
DAYTON, OHIO New York, N. Y., 30 E. 42d St.

No. 2A Thermostat
ROBERTSHAW MFG. CO. YOUNGWOOD, PA.
The standard for 30-40 gal. boilers, and single coil heaters or equivalent. Has ⅜-in. gas openings.
We Make All Sizes

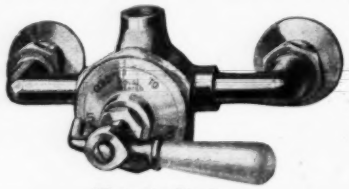
UNCLE SAM has tested our
STANDARD PORTABLE VISE BENCH AND PIPE BENDER
and same has proved satisfactory. HE is now one of the THOUSANDS of satisfied users we have. Drop us a line and we will send you full particulars, or ask your jobber for same.
STANDARD IRON WORKS
508-10 E. 74th Street, New York City

¶If you want a salesman, foreman or workman, advertise in the Classified Department of "*Domestic Engineering.*" Used by the best houses in the trade.

ROYAL

Mixing Valve for Showers

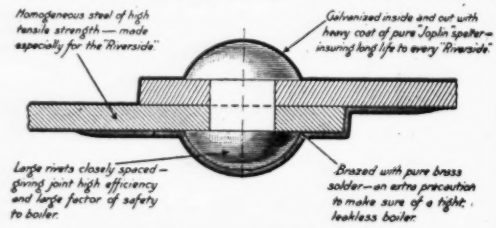
Simple in Operation—Few Working Parts.



Write for Catalogue.

THE ROYAL BRASS MFG. CO. CLEVELAND, OHIO

The "Riverside" Riveted and Brazed Seam


Homogeneous steel of high tensile strength — made especially for the "Riverside"
Galvanized inside and out with heavy coat of pure Joplin spelter — insuring long life to every "Riverside"
Large rivets closely spaced — giving joint high efficiency and large factor of safety to boiler.
Brazed with pure brass solder — an extra precaution to make sure of a tight, leakless boiler.

The Strongest and Tightest Seam on any Range Boiler

Riverside Boiler Works, Inc.

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"Reading" Specialties

for

Hot Water - Steam Vapor and Vacuum Heating

Embody Advanced Ideas

The Reading Heater & Supply Co., Inc. Reading, Pa.

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This Catalog contains interesting details on

"Reading" Heating Specialties

Gives you the information you want regarding the "Reading" Tank-In-Basement System, modern installation methods, fuel saving, uniform heat, etc.

Send for your copy today.

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Reading, Pa.

Tank Fittings of Quality

1856 **"McSHANE"** 1918

The ORIGINAL Compound Lever Ball Cock, Elevated, Low-Down, Top and Bottom Supply. Tank Levers and Valves.

McSHANE BELL FOUNDRY CO.
BALTIMORE, MARYLAND

C. C. Cawsey, of the Lowman Building, has been awarded the contract to remodel the Rialto Building at Second Avenue and Madison Street. The Second Avenue floor will be divided into stores, and the second floor of the building will be used for sales rooms. The third floor will be converted into offices. Extensive changes in the plumbing system and the heating plant will be necessary.

J. A. Wickman, of J. A. Wickman Co., plans the construction of about 50 homes in the Hawthorne and Rose City Park districts. The houses will be four and five-room modern structures, costing $2,500 to $3,500.

The Quist Construction Co., Hoge Building, has received the general contract for the construction of the first unit of the Government's housing project at Bremerton, the Puget Sound Naval Station. The first unit will include construction of approximately 250 houses, three large apartment houses and a 400-room hotel building. Contract was let on a fixed fee basis, and will amount to about $1,750,000. Early start in construction work will be made. A. A. McCree will be superintendent of works for A. H. Albertson, architect in charge.

Building permits issued in Seattle to date already exceed in valuation the permits issued for the entire year of 1917. Up to August 1, 1918, 5,703 permits were issued, with a valuation of $6,228,010. Since that date, permits have been issued that bring the total valuation up to $6,813,880, as compared with $6,714,315 for the entire year of 1917. The larger portion of the permits was for residences.

W. D. Allen, of the Stuart Building, has recently been awarded the contract for heating the new $200,000 plant for the Centennial Mills Co., at East Marginal Way and Whatcom Avenue.

Other Cities in the State.

Building work has been active in the city of Vancouver. The largest project under way at this time is the big hotel under construction by the G. M. Standifer Construction Co., and 100 residences for workmen.

The American Red Cross plans the erection in Vancouver, of an administration building and convalescent house at Vancouver Barracks. It is also stated that the War Department will construct six additional hospital buildings at the Vancouver Barracks, at a cost of $74,000.

W. E. Magiell, Vancouver, plans the construction of eleven residences in that city, four of which will cost $3,000, and the other seven about $2,500 each.

Appling-Griggs Co., of Tacoma, has been awarded the contract for the installation of the heating system in the power house at Grand Mound.

The building situation in Cle Elum, which was almost destroyed by fire some weeks ago, is showing considerable improvement. There is great activity throughout the burned sections, and houses are being built in large numbers.

The Washington State Board of Control has rejected all bids for the construction of a new heating and power plant for the State School for Girls at Grand Mound, and has decided to have the work done by day work. The lowest bid received was $16,735, or about $8,000 more than the appropriation available for the work.

Why Vegetables Cost More.

Mrs. Smith: "Really, Mr. Giles, your prices are getting exorbitant."

Farmer Giles: "Well, mum, it's this way: When a chap 'as to know the botanical name of what 'e grows, an' the zoological names of the hinsect wot eats it, an' the chemical name of wot kills the hinsect, some one's got to pay for it!"—"Passing Show."

THE WHY AND WHEREFORE OF SANITARY ENGINEERING.

(Continued from Page 355.)

quired to raise a given mass of substance through 1° Cent., compared with the amount required to raise an equal mass of water through 1° Cent., or it can be expressed as follows:

$$\frac{\text{Heat required to raise substance 1° Cent.}}{\text{Heat required to raise equal weight of water 1° Cent.}}$$

Of all substances water is the most difficult to heat. In other words, water has a greater capacity for heat than any other substance. It is therefore adopted as the unit or standard of comparison.

The specific heat of water as compared with the earth is as 4 is to 1. It is for this reason that seaside or lakeside places are cooler in the summer months than inland towns. This is also the reason why we spray water around our dwellings in the hot summer season.

The simplest method to determine the specific heat of a substance is to mix it with water. Suppose that 6 pounds of mercury at 100° Cent. are poured into 2 pounds of water at 0° Cent., and that the resulting temperature of the mixture is 9° Cent. The specific heat of the mercury can be found as follows:

In falling from 100° Cent. to 9° Cent. the 6 pounds of mercury give out $6\times(100-9)=546$ heat units. These have gone to heat 2 pounds of water from 0° Cent. to 9° Cent., which requires 2×9 or 18 heat units. Hence we may write

$$\frac{546}{18}=\text{Specific heat}=0.033.$$

The following are the specific heats of substances we are interested in:

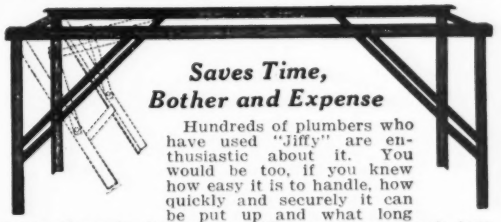
Water	1.0000	Zinc	.0955
Lead	.0314	Wrought Iron	.1099
Tin	.0569	Steel	.1169
Brass	.0940	Cast Iron	.1298
Copper	.0952	Glass	.1937

(To be Continued.)

HUNS HARD UP FOR METALS.

Following upon the petition of the German Property Owners' Association to the Reichstag the Berlin City Council, in a memorial to the War Office, associates itself with the protests against the metal confiscations. The memorial states that there are still large quantities of copper, brass and bronze available in Belgium, where no church bells have yet been melted down. In Germany also there are large quantities of scrap metal in the hands of the public authorities which have been notified as long ago as 1915 and have never been seized. Further large supplies are certain to accrue from the impending confiscation of public monuments, the increased melting down of church bells, and the increase in the price which the authorities have agreed to allow for roofing copper. There are immense quantities of roofing copper still available if only the military authorities will provide the men to take it down. A special grievance of householders, the memorial further points out, is that factories and shops still have articles of the same kind as those which were removed from private houses as far back as 1915. Property owners have already been hard hit by the war and now their houses are to be permanently depreciated in value by the removal of indispensable and valuable fittings. The Minister of War is therefore urged to postpone the seizure of domestic fittings until all other sources of supply have been tapped, or, alternatively, to increase materially the prices to be allowed.

The "JIFFY" Collapsible Laundry Tray Frame



Saves Time, Bother and Expense

Hundreds of plumbers who have used "Jiffy" are enthusiastic about it. You would be too, if you knew how easy it is to handle, how quickly and securely it can be put up and what long years of service it will give. Made of heavy angle iron. Braces of heavy steel, coated with durable black paint. It's a money maker for you. Go see the "Jiffy" at your jobber.

THE FORD DONLEY CO., 1940 East 117th St., Cleveland, Ohio

Eagle All Lead Roof Flange

LEAD PIPE
Length, 6 inches
Diameter, 4½ inches
Made in Angles, 45 deg., 22½ deg. and Straight.

SIZE OF APRON
15 inches Square

No Caulking To Be Done
Joints Lead-burned — No Solder Used
Flexible Adjustable Economical
Write for Circular and Prices.

Manufactured only by

The Eagle-Picher Lead Co.
CINCINNATI, OHIO

Use Products

manufactured by

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735 South Washtenaw Ave. CHICAGO

If Your JOBBER Cannot Supply You With Our Goods, Send Your Orders To Us Direct

NIEDECKEN MIXER

For
Shower
Lavatory
Bath
Sink
Etc.

Write for Bulletin D-10-X

HOFFMANN & BILLINGS MFG. CO.
MILWAUKEE

WARCO

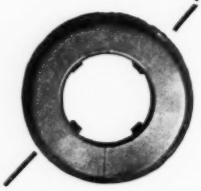
Floor and Ceiling Plates

Substantially made of heavy stamped steel. May be cut to fit any conditions. Adjustable. Unbreakable.

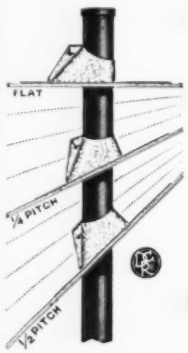
Hinge and catch new in construction and invisible when plate is closed.

Nickeled on copper. Highly polished. Sizes, ⅛-in. to 3-in.

Write for prices and details.



W. A. RUSSELL & COMPANY
63 W. 37th St., New York City



Plumbers Like

The Overton
Adjustable Flashings

So easily adjusted
So easy to install
Hugs any pipe water-tight
Your dealer has them in stock
Write for circular

Manufactured by
Duluth Corrugating & Roofing Co.
DULUTH, MINN.

Just Clean Sweep Traps—

The Knowledge we have gained, the Judgment we have developed, the Business Foresight in production of the Best Trap in the World is all yours for the asking.

Just mention Clean Sweep Traps.

You will get them.

The Government uses them, and everybody else, nearly.

In either Lead or Brass.

Detroit Sanitary Supply Co.
Sole Manufacturers
Second Ave. and Antoinette St.
DETROIT MICHIGAN

TRY BLUE SEAL
AT OUR EXPENSE

This liberal offer is for plumbers who have never used BLUE SEAL. It gives an opportunity to try at our expense the original Money Back Drain Pipe Solvent.

Cut out this advertisement, mail it direct to us with your own address—and your jobber's. We will then send you, transportation charges prepaid, six one dollar cans (2 lbs.) BLUE SEAL

DRAIN PIPE SOLVENT

Use these six cans according to directions to clear waste and drain pipe stoppages. If the Solvent does all we claim for it you are to send us $3.60 (special price for plumbers) within ninety days. If not the trial costs you nothing.

10,000 plumbers now use Blue Seal. Over 300 jobbers stock, sell and recommend it. If you haven't used it, this is your opportunity

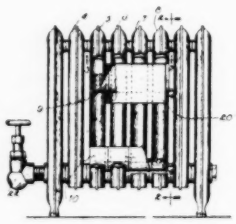
BLUE SEAL CHEMICAL CO.
417 E. 16th St. New York

Patents

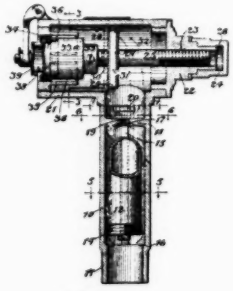
Heating Department.

1,273,888. Humidifier. Frederick Lindmeier and Justus Lindmeier, Oak Park, Ill. A combined radiator and humidifier comprising a plurality of vertically arranged radiator sections, each section including a plurality of spaced heating conduits, co-operating flanges on certain of said sections forming upper and lower water receiving reservoirs, and absorbent material for conducting water from the upper receptacle, a portion of said absorbent material extending over said lower receptacle, the lower reservoir being wider than the upper.

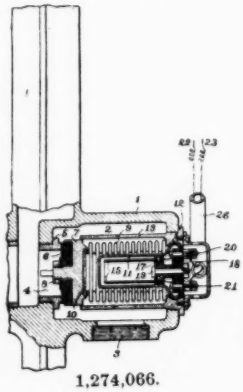
1,273,899. Thermostatic Valve. Joseph Messmer, Kirkwood, Mo., assignor to Continental Brass & Foundries Co., St. Louis, Mo., a corporation of Missouri. A valve for heating systems comprising a pipe projecting from the air-exhaust line of the system, a tube connected with said pipe having a port for the escape of air, a restricted opening between said tube and pipe, a baffle-plate disposed above said opening, a float within said pipe adapted to close said opening, a plunger disposed within said tube opposite said port, a thermally sensitive element mounted upon the stem of said plunger, and a member adapted to prevent the admission of air through said port.



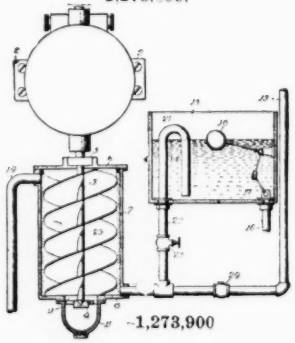
1,273,888.



1,273,899.



1,274,066.



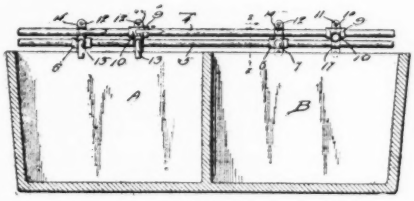
1,273,900

1,274,066. Heat Regulator. Harry C. Mallory, Bellport, N. Y. The combination with a primary circuit controller, of an electric circuit, a secondary heat actuated controller, means for maintaining said secondary heat actuated controller at a normal elevated temperature, a heater in said electric circuit for raising the normal temperature of said secondary heat controller to a higher degree and a device adapted to be moved to one position when said secondary controller is normally heated and to another position when abnormally heated.

1,273,900. Vacuum System. Frank W. Miller, Chicago, Ill. A vacuum system comprising a stationary casing, a spiral suction creating device mounted therein and spaced equally from the surrounding casing throughout its periphery, means for supplying air and a liquid to the intake end of said casing, and means for delivering air and liquid from the other end of said casing, a portion of the liquid being maintained by gravity and centrifugal force in the casing to form a liquid seal around said suction creating device.

Plumbing Department.

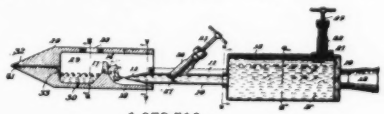
1,273,471. Plumbing Fitting. Thomas H. Ferris, Brooklyn, N. Y. In a plumbing fitting, the combination with a receiving member, and a plurality of substantially alined supply pipes therefor, said supply pipes being substantially straight, a coupling for each pipe connected directly



1,273,471

thereto, a tang integral with each coupling, the tang of one coupling extending farther above than below its pipe, and the tang of the other coupling extending farther below than above its pipe, the ends of said tangs lying in substantially horizontal parallel lines, a nozzle extending from one of the couplings, a nozzle extending from the other coupling downwardly and forwardly and terminating in the same horizontal plane with the termination of the other nozzle, and faucets extending from said nozzles.

1,273,518. Soldering Iron. Andrew Mercak, East Doughlass, Mass. A soldering iron comprising a block having a forwardly arranged point and further having an internal chamber provided with a substantially central baffle plate dividing the chamber into an open ended outer portion and an axial outlet in its forward pointed portion and a groove leading from the said outlet into the crucible portion, the said block further having an inlet above the crucible portion and side openings at opposite sides of the baffle plate, a shank carried by the rear end of the block, a holding handle upon the free end of the shank, a gasoline tank arranged upon said shank, a burner tube extending from said tank with a tapered outlet burner end



1.273,518.

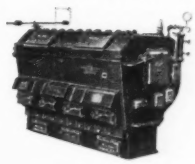
within the block adjacent the outer side of said baffle plate, a controlling needle valve in the said outlet pipe, an air inlet nipple upon the tank, a needle valve for the said nipple and a removable head at the outer end of the tank.

1,273,859. Attaching Means for Bibs. John Hochberger, Chicago, Ill., assignor to Lillian J. Hochberger, Chicago, Ill. The combination with a laundry tray having an opening in its wall and a bib disposed therein, of attaching means for said bib comprising a coupling member reduced at either end and threaded for connection with the bib and water supply line, the relatively large central portion of said coupling member being also threaded, a plastic filler dis-

Economical Heating—A sufficient reason why you should install

PIERCE DOWN DRAFT HEATING BOILERS

For Steam, Water, Vapor, Vacuum, Heating



There are other reasons, too:

1. Magazine Feed.
2. Down Draft.
3. Smoke Consuming.
4. 25% Fuel Expense Saved.
5. 50% Less Attention.
6. All Cast Iron.

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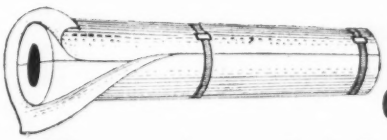

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All Kinds

Our free art sign will help your sales. Write today for it, prices and samples.

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Anti-Scalding Leak-Proof

Accessible Durable

No Cams

Made to suit all conditions

No Springs

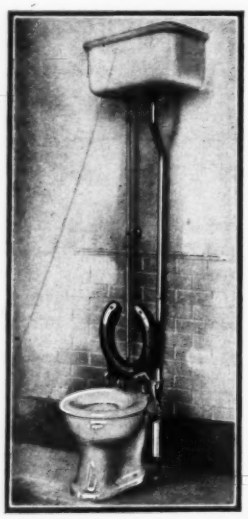
Order from your jobber

Fig. C-15

The Milwaukee Flush Valve Co.
MILWAUKEE, WISCONSIN
Specialists in the Manufacture of Valves

FOR lasting quality and true capacity use "KOVEN" Pure Iron, Double Row Riveted, Galvanized Range Boilers, or NACO Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

L. O. KOVEN & BRO.
50 CLIFF STREET NEW YORK



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The Main Feature

The MAXCO Automatic Flushing Device

has only one part —is located above water line, and float is arranged to insure complete syphonage.

Most positive and reliable self-operating closet made.

Try the MAXCO on your next school or factory job — you'll be more than pleased.

Write for more details.

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1167-75 Jefferson Ave. E.
DETROIT, MICH.

Interior View of Tank

C 934 "A."

Government (Cantonment Type) TULIP PATTERN 4 inch Cast Brass Shower Head with Removable Face Tapped half inch Iron Pipe Female.

Rough Brass or Polished and N. P.

PRICES ON APPLICATION

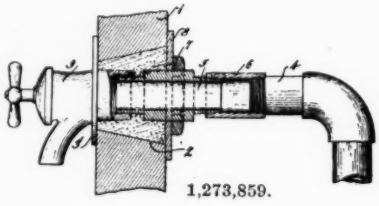
Manufactured by

STREET & KENT MFG. CO.
549 Fulton St., Chicago, Ill.

posed in the tray opening surrounding the connection of the coupling and the bib, a washer mounted upon said coupling and constituting a mold form for one side of the plastic material, and means on said coupling member for holding the washer in position retaining the plastic material in the opening.

1,274,269. Sanitary Hand-Spray. Simon Huffer, Decatur, Ill. A hand spray comprising a member formed to provide a bell-shaped element, a bushing rising therefrom and threaded for engagement with a supply pipe, a series of passages formed in the bushing and directed downwardly and toward the element, a valve for closing the ends of said passages remote from the element, and means extending centrally of the element and depending below the lower edge thereof for operating the valve.

1,274,195. Automatic Flushing Device. Benjamin Purnell, Benton Harbor, Mich. In a valve controlling mechanism for flushing water closets, having a body, a barrel adapted to contain a fluid axially guided by said body and rigidly fixed to a flush control valve stem, a single piston having a check valve fitted within said barrel and operably movable relative to said barrel and body, a rod adjusting nut and lever connecting said piston to a bowl-seat, a spring adapted to react between said piston and said barrel, and a spring adapted to react between said piston and said body; a by-pass in said piston obtained by slotting said check valve's face or seat.



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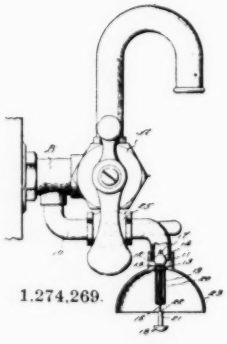

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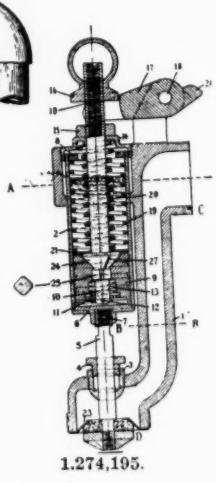

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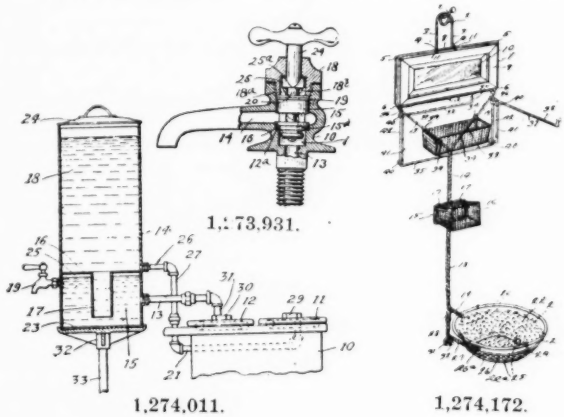
1,273,931. Self-Closing Faucet. John P. Schild, Cleveland, Ohio. A self-closing faucet having a vertical chamber which is provided with an inlet adjacent its lower end and a laterally extended outlet between its ends, a plug fitted within said chamber and extending both above and below the water outlet, said plug having a vertical cylindrical hole through it from top to bottom and having a laterally extended passageway from said hole to said chamber in the plane of the water outlet therefrom, and said plug having an annular valve on its lower end, a vertical valve stem which is nicely fitted to and is slidable within the vertical hole in said plug and extending both above and below the same, and having on its lower end a valve for engagement with said valve seat,—and said stem being provided with a water passage which at its upper end is in communication with the lateral water passage in the plug and which at its lower end terminates in a part of the surface of said valve stem, which is such a distance above the valve that it may

be uncovered by the downward movement of the valve from its seat, but which will pass wholly within said hole and be entirely covered so as to stop the entry of water into the same before the valve in closing comes in contact with its seat, and means for pushing said valve stem downward.

1,274,011. Open Tank Heating System. Irvin W. Cummings, Minneapolis, Minn. A hot water heating system comprising an open tank for containing a supply of water, a partition in said tank dividing the same into an upper and lower compartment, means connecting the lower portion of the upper compartment with the lower portion of the lower



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1,274,172.

compartment for permitting flow of water, said means comprising a tubular member attached to said partition and extending downwardly, the passageway in said tubular member registering with a central opening in said partition, a hot water circulating system comprising water heating members and outflow and inflow pipes in communication, respectively, with the lower and upper compartments, and means for withdrawing water from the top of the lower compartment.

1,274,172. Toilet-Article Holder or Cabinet. Elmo W. Lee, Tamaroa, Ill. In a toilet fixture, a skeleton frame constructed of wire and having a mirror frame supporting portion, said fixture frame having a depending part from the mirror supporting portion, said depending part terminating at its lower end in circular laterally extending concentric rings of different diameters, the larger being super-imposed and both designed to be engaged by a wash basin, said depending part having diagonal portions, a U-shaped frame depending from said diagonal portions, and towel racks, one pivoted on each end of said U-shaped frame, said U-shaped frame being interposed between the depending part and the wall from which the fixture frame may be suspended, thereby preventing displacement of the U-shaped frame.

Late News from St. Paul, Minn.

The Farrell Plumbing & Heating Co., has the contracts for plumbing in the three-story brick and concrete Blessed Sacrament School building at Ames and White Bear Avenues; the W. T. McKay residence, Dayton and Snelling Avenues; and the Nels Frederickson residence, Capitol and Wheeler Avenues.

F. J. Spriggs has secured the contract for the plumbing work in the St. Marks' Church building at Dayton and Moore Avenues, a $3,000 job.

J. P. Adamson will install the plumbing in the two-story dwelling of L. W. Class, Summit and Finn Avenues.

C. P. Dahlby has secured the contract for the plumbing work in the two-story frame dwelling of Nels Johnston, at 1054 Arcade Street.

Increase Your Profits

BY INSTALLING

RELIABLE

Heating Specialties

Can readily be applied to steam heating plants of any kind or size, **new or old,** and, by making them fully efficient, saves 25 to 40% of the fuel.

We also manufacture the American System of Temperature Regulation, the Van Auken Vacuum System, the Thermograde Modulation System, High Pressure Specialties, etc.

Full particulars and prices upon request.

THE BISHOP & BABCOCK COMPANY

General Offices and Factories, CLEVELAND, OHIO.

Never-Tip Laundry Tray Legs

Sink Brackets

Boiler Stands

Iron Body Ferrules

Other Cast Iron Sanitary Products

All Mechanically Correct, Perfect in Design and Made of Strong, Tough Iron.

Hammond-Byrd Iron Company

Chicago, Birmingham, Kansas City

Classified Advertisements

The charge for advertisements under this heading is $1.00 for 25 words or less, including heading and address; 4 cents each for additional words. To insure insertion, copy and remittance should reach us by Wednesday morning.

Situations Open

WANTED—MEN TO SELL RADIATION, boilers and other heating goods on commission basis in Eastern Pennsylvania, Ohio, Maryland and West Virginia. Address 2554, care "Domestic Engineering," Chicago. 8-31-4

For Sale.

FOR SALE—PLUMBING AND HEATING business in northwest Washington. Sell at invoice. Reason for selling, called in draft. Address 2556, care "Domestic Engineering," Chicago. 9-7; 14

FOR SALE—ONE COMPLETE SET OF tinner's tools as good as new. Only used five years on light work. Will be sold at a sacrifice, as we have no further use for them. Write F. F. MacNichol & Co., Oshkosh, Wis. 9-7-14-21

FOR SALE — PLUMBING, HEATING and sheet metal business in Central Illinois. Located 100 miles from Chicago. Good reasons for selling. Doing $15,000 business yearly. Address 2555, care "Domestic Engineering," Chicago. 9-7

FOR SALE—PLUMBING, HEATING, sheet metal and store business in second class city. Located about fifty miles out of Pittsburgh. Established eleven years. Doing fine prosperous business. Good reasons for selling. Address 2553, care "Domestic Engineering," Chicago. 8-31-5

Miscellaneous.

WE BUY IRON PIPE COUPLINGS—spot cash. How many, either pounds or pieces have you of various sizes? Gwilliam Supply Co., 615 Christian Street, Philadelphia, Pa. 10-6,tf

SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf

Government Proposals

Treasury Department, Supervising Architect's Office, Washington, D. C., August 27, 1918.—Sealed proposals will be opened in this office at 3 p. m. September 24, 1918, for repairs to plumbing in the United States Court House at Santa Fe, New Mexico, in accordance with the specification and drawing, copies of which may be had at this office or at the office of the Custodian at Santa Fe, New Mexico, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 9-7; 14.

Books for Your Trade Library.

Sanitation in the Modern Home..... 2.00
Sanitary Sewerage of Buildings..... 1.50
Notes on Heating and Ventilation, Prof. John R. Allen..... 2.50

Domestic Engineering
407 S. Dearborn St., Chicago

Use This Page To Get What You Want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only four cents a word and may mean many dollars to you.

Write for This Booklet

It tells you all about the

Ball Seal Generator

for Hot Water Heating.

This generator increases circulation and radiation. Prevents sluggish, water-logged conditions. Reduces fuel cost. Operates without noise. No attention needed.

Just what you want for that next job.

The Ball Seal Generator Co.
Easton, Pa.

WE BUY
Iron Pipe Couplings
SPOT CASH

How many, either pounds or pieces, have you of various sizes?

GWILLIAM SUPPLY COMPANY
615 Christian Street PHILADELPHIA, PA.

The Trap That Does The Work

Every sink you install should be equipped with the Boston Grease Trap. It collects and holds all grease and keeps the pipes free. Very large handhole makes it easiest to clean out. The only grease trap you will use after giving it a trial.

Write for circulars and prices.

R. ESTABROOK'S SONS, 1st and C Streets, SOUTH BOSTON, MASS.

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AUTOMATIC GAS WATER HEATERS